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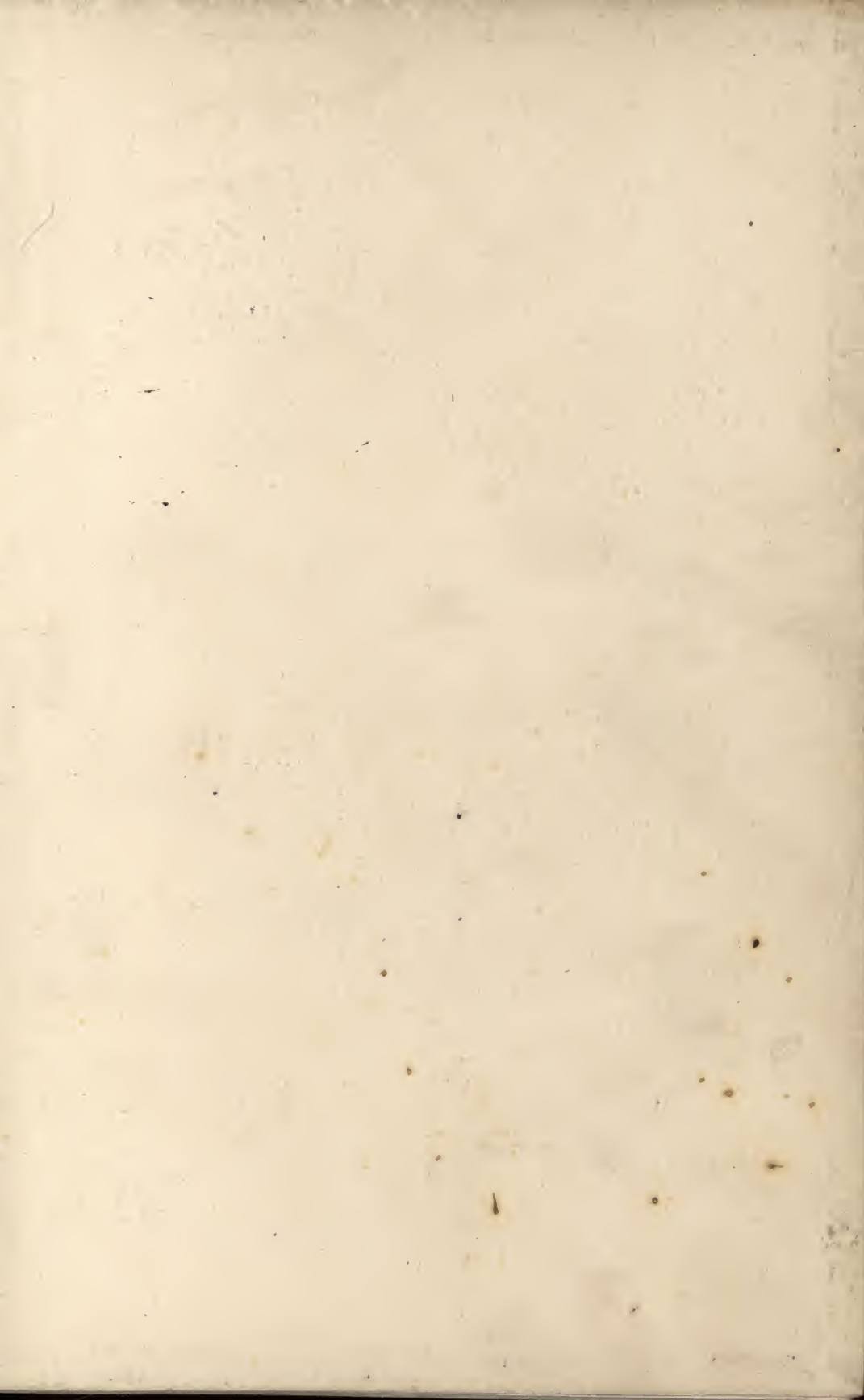
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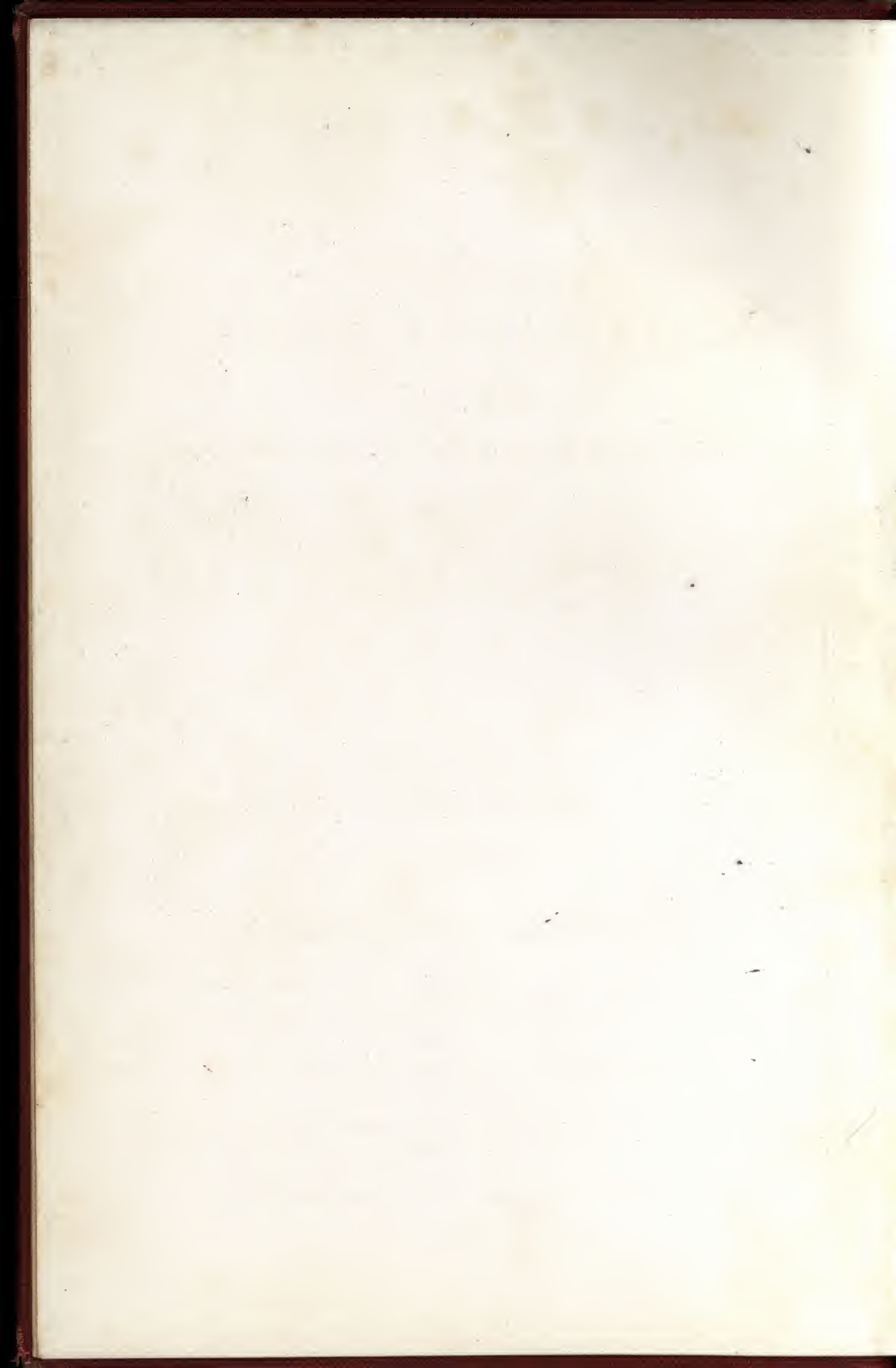
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Established in 1880 by Henry E. Bullock

Incorporated 1884

# ILLINOIS MALLEABLE IRON COMPANY

MANUFACTURERS AND DISTRIBUTORS OF

MALLEABLE *and* CAST IRON PIPE FITTINGS  
HOUSE HEATING BOILERS, ETC. PIPE,  
STEAM FITTERS', ENGINEERS',  
GAS, WATERWORKS AND  
RAILROAD SUPPLIES

## CATALOGUE

(*Steam Goods Department*)

*General Offices:* 1801-1825 DIVERSEY PARKWAY

*Works:*

Diversey Parkway and C. & N. W. R. R., Ashland Ave. and Wellington St.

*Branch Stores:*

4545-4547 South State Street

1901 West Van Buren Street

2428 Lincoln Avenue

CHICAGO, ILLINOIS, U. S. A.

*Canadian Plant:*

INTERNATIONAL MALLEABLE IRON CO.  
GUELPH, ONT., CANADA

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BY

F. E. Moore

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COMPILED BY F. E. MOORE

Chicago, Ill.



# ILLINOIS MALLEABLE IRON CO.

## CHICAGO, ILLINOIS

General Office: 1801 Diversey Parkway

Factories: Diversey Parkway and C. & N. W. R. R., Ashland Avenue and Wellington Street



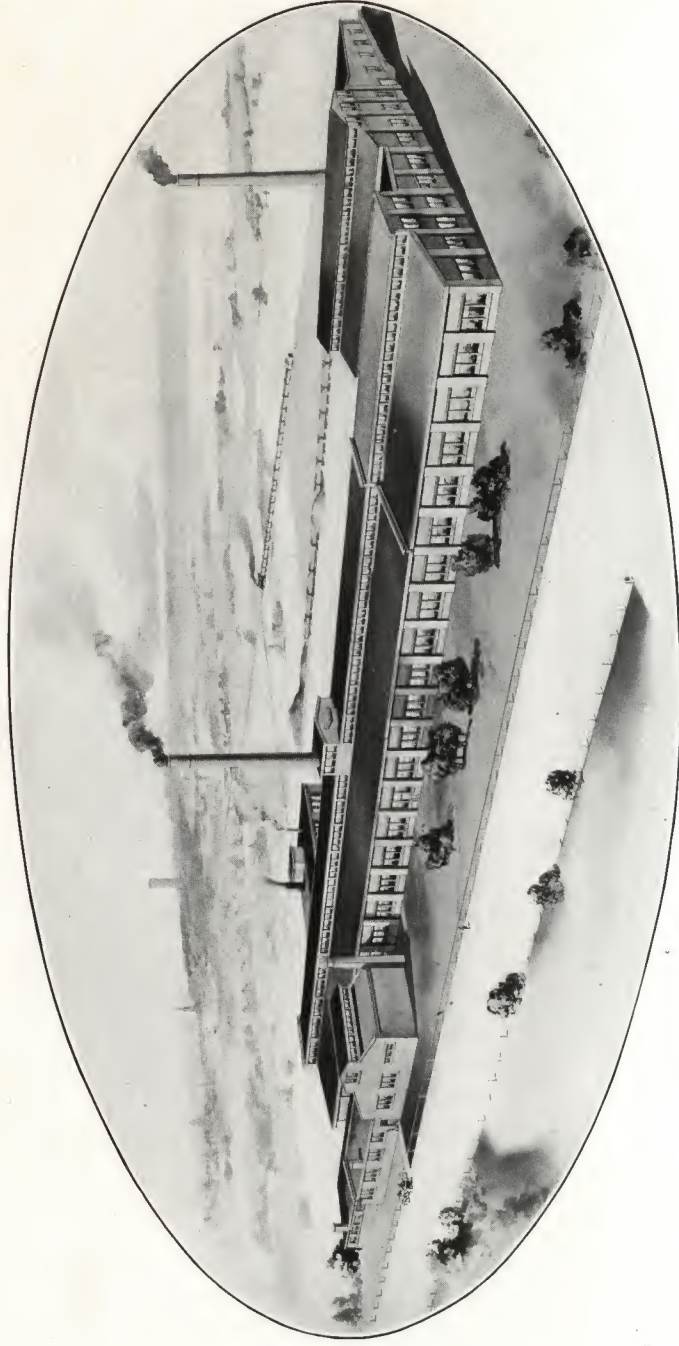
PLANT 3  
G, H, N, O and P  
Malleable Foundries

PLANT 2  
C—Gray Iron Foundry  
J—Gray Iron and Boiler  
Erecting Shop  
D, E—Malleable Foundries

PLANT 1  
F—Offices and Warehouse  
A—Machine Shop  
B—Brass Foundry and  
Machine Shop



# CANADIAN PLANT



INTERNATIONAL MALLEABLE IRON CO.  
GUELPH, ONTARIO

Trade Mark Registered



U. S. Patent Office 1912

# CASTINGS

We solicit orders for

Malleable Iron Castings

Gray Iron Castings

Brass or Bronze Castings

Aluminum Castings

of any description for Manufacturers  
or other users.

# GALVANIZING and TINNING

We are prepared to Supply Castings,  
Galvanized or Tinned, or to Galvanize  
or Tin Castings, etc., to order.

## CONDITIONS OF SALE

1. All prices are subject to change without notice; quotations are made for immediate acceptance.

2. All contracts subject to strikes, accidents or causes beyond our control.

3. Our liability for shortages, breakages or damages of any nature ceases upon delivery to, and clear receipt obtained from, the transportation company.

4. Claims for corrections or deductions for erroneous charges must be made within ten days after receipt of goods. In making claims for shortage of goods, or overcharge in freight, the *original* paid freight bill must accompany each claim, which, in case of shortage, should bear notation thereon to that effect. In making claims always refer to date and number of invoice.

5. We exercise reasonable care to furnish nothing but perfect goods, but it must be understood that we assume no liability for damages of any character.

6. Should any article be found defective in either material or workmanship, we will, upon return to us of such defective article, either give credit at price charged, or exchange same for a perfect article of like description, but no further allowance of any kind will be made. No allowance will be made, however, unless arrangements have been made in advance of return.

7. Orders for goods not regularly carried in stock, or to be made to customers' specifications, are not subject to cancellation at any time.

ILLINOIS MALLEABLE IRON COMPANY.



## TELEGRAPH CODE

## QUOTATIONS, ORDERS, AND SHIPMENTS

## FOR BUYERS

<b>Abaft</b> .....Have you in stock, if not, how soon can you furnish?	<b>Affront</b> .....If you can not ship at once, cancel.
<b>Abduct</b> .....Can you ship at once?	<b>Afresh</b> .....If not already shipped, cancel.
<b>Abhor</b> .....At what price and how soon can you furnish?	<b>Agate</b> .....Ship with sight draft attached to bill of lading.
<b>Abode</b> .....Can you ship?	<b>Babble</b> .....Get ready and hold for shipping directions.
<b>Abound</b> .....Have you shipped?	<b>Baboon</b> .....Ship what you have in stock and let balance follow.
<b>Abridge</b> .....If not, when will you ship?	<b>Baby</b> .....Ship what you have in stock and hold balance for further instructions.
<b>Adam</b> .....When will you ship balance of our order of —?	<b>Back</b> .....Hold for further instructions our order of —.
<b>Adder</b> .....Quote us lowest price on —.	<b>Backing</b> .....Cancel our order of —.
<b>Addling</b> .....Advise by wire how soon you can ship.	<b>Badger</b> .....Ship goods ordered at once.
<b>Adept</b> .....We will accept offer.	<b>Badness</b> .....Hasten shipment of.
<b>Adjunct</b> .....Enter our order for —.	<b>Baffling</b> .....Send tracer for shipment.
<b>Admire</b> .....Ship immediately.	<b>Bag</b> .....Get through rate of freight.
<b>Admix</b> .....Ship as soon as possible.	<b>Bailiff</b> .....Prepay freight.
<b>Affect</b> .....Ship by Express.	
<b>Affright</b> .....If you cannot ship in time named, advise us by telegraph.	

## WROUGHT PIPE

Extra Strong.....	Schley
Double Extra Strong.....	Dewey

## NUMBER OF FEET

25 feet.....Africa	800 feet.....Holland	8000 feet.....Russia
50 ".....Alabama	900 ".....Ireland	9000 ".....Spain
75 ".....Arizona	1000 ".....Japan	10000 ".....Texas
100 ".....Asia	2000 ".....Kentucky	15000 ".....Uruguay
200 ".....Belgium	3000 ".....Liberia	20000 ".....Valparaiso
300 ".....Chili	4000 ".....Maine	25000 ".....Washington
400 ".....Denmark	5000 ".....Nevada	30000 ".....Xenia
500 ".....Egypt	6000 ".....Ohio	40000 ".....Yorkville
600 ".....France	7000 ".....Peru	50000 ".....Zanesville
700 ".....Germany		

## BLACK PIPE

¼ inch.....Allegheny	1½ inch.....Harrisburg	5 inch.....Newark
¼ ".....Baltimore	2 ".....Ithaca	6 ".....Onelda
¾ ".....Camden	2½ ".....Jamestown	7 ".....Paris
½ ".....Detroit	3 ".....Kensington	8 ".....Reading
¾ ".....Erie	3½ ".....Lancaster	9 ".....Salem
1 ".....Fairmont	4 ".....Macon	10 ".....Troy
1¼ ".....Galena	4½ ".....Quincy	12 ".....Utica

## GALVANIZED PIPE

¼ inch.....Amazon	2 inch.....Hudson	6 inch.....Osage
¾ ".....Bay	2½ ".....Indus	7 ".....Po
½ ".....Colorado	3 ".....Juniata	8 ".....Rhine
¾ ".....Danube	3½ ".....Kanawha	9 ".....Seine
1 ".....Elbe	4 ".....Lake	10 ".....Tweed
1¼ ".....Firth	4½ ".....Miami	12 ".....Ural
½ ".....Ganges	5 ".....Nile	





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648	71	2224	112	4946	170	6813	30	8768	60
652	48	2312	23	5031	174	6816	277	8817	61
670	106	2335	118	5044	127	6854	47	8826	62
710	50	2530	85	5100	35	6867	162	8827	67
722	56	2550	83	5138	272	6869	12	8833	68
723	57	2669	136	5241	110	6934	214	8876	66
728	283	2862	192	5242	177	6955	215	8914	163
732	108	3019	221	5265	204	7104	208	8915	63
733	107	3133	151	5287	205	7188	13	8948	183
734	109	3163	7	5290	227	7191	42	8958	231
739	111	3274	49	5291	228	7267	43	9003	264
757	140	3387	149	5308	134	7280	158	9007	224
759	143	3395	210	5316	91	7293	172	9013	194
761	115	3421	281	5351	130	7503	225	9021	193
766	124	3502	190	5361	53	7511	230	9151	263
773	119	3526	188	5702	218	7524	184	9168	279
787	144	3543	189	5714	216	7570	282	9214	242
785	138	3584	191	5849	157	7618	171	9225	267
800	153	3591	25	6001	24	7728	44	9240	247
857	86	3606	220	6023	26	7750	232	9302	280
925	131	3679	168	6028	36	7765	248	9340	237
932	137	3692	181	6029	31	7810	147	9341	243
1229	93	3802	122	6049	217	7811	148	9349	238
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# STANDARD STEAM, GAS AND WATER PIPE

## BLACK AND GALVANIZED



Fig. 1A

As Adopted January 1, 1913

All Weights and Dimensions are Nominal

Size Inches	Price per Foot	DIAMETER INCHES		Thickness Inches	WEIGHT, PER FOOT POUNDS		Number of Threads per Inch
		External	Internal		Plain Ends	Threaded and Coupled	
$\frac{1}{8}$	.05 $\frac{1}{2}$	.405	.269	.068	.244	.245	27
$\frac{1}{4}$	.06	.540	.364	.088	.424	.425	18
$\frac{3}{8}$	.06	.675	.493	.091	.567	.568	18
$\frac{1}{2}$	.08 $\frac{1}{2}$	.840	.622	.109	.850	.852	14
$\frac{3}{4}$	.11 $\frac{1}{2}$	1.050	.824	.113	1.130	1.134	14
1	.17	1.315	1.049	.133	1.678	1.684	11 $\frac{1}{2}$
1 $\frac{1}{4}$	.23	1.660	1.380	.140	2.272	2.281	11 $\frac{1}{2}$
1 $\frac{1}{2}$	.27 $\frac{1}{2}$	1.900	1.610	.145	2.717	2.731	11 $\frac{1}{2}$
2	.37	2.375	2.067	.154	3.652	3.678	11 $\frac{1}{2}$
2 $\frac{1}{2}$	.58 $\frac{1}{2}$	2.875	2.469	.203	5.793	5.819	8
3	.76 $\frac{1}{2}$	3.500	3.068	.216	7.575	7.616	8
3 $\frac{1}{2}$	.92	4.	3.548	.226	9.109	9.202	8
4	1.09	4.500	4.026	.237	10.790	10.889	8
4 $\frac{1}{2}$	1.27	5.	4.506	.247	12.538	12.642	8
5	1.48	5.563	5.047	.258	14.617	14.810	8
6	1.92	6.625	6.065	.280	18.974	19.185	8
7	2.38	7.625	7.023	.301	23.544	23.769	8
8	2.50	8.625	8.071	.277	24.696	25.	8
8	2.88	8.625	7.981	.322	28.554	28.809	8
9	3.45	9.625	8.941	.342	33.907	34.188	8
10	3.20	10.750	10.192	.279	31.201	32.	8
10	3.50	10.750	10.136	.307	34.240	35.	8
10	4.12	10.750	10.020	.365	40.483	41.132	8
11	4.63	11.750	11.	.375	45.557	46.247	8
12	4.50	12.750	12.090	.330	43.773	45.	8
12	5.07	12.750	12.	.375	49.562	50.706	8
13	5.60	14.	13.250	.375	54.568	55.824	8
14	6.10	15.	14.250	.375	58.573	60.375	8
15	6.50	16.	15.250	.375	62.579	64.500	8

The permissible variation in weight is 5 per cent above and 5 per cent below.

Furnished with threads and coupling and in random lengths, unless otherwise ordered.

For cut lengths, an extra charge will be made above random lengths.

For pipe smoothed on the inside, known as reamed and drifted, an extra charge will be made above standard pipe.

For galvanized or coated pipe, an extra charge will be made above black.



**STEAM, GAS AND WATER PIPE****BLACK AND GALVANIZED**

All Weights and Dimensions are Nominal

Adopted January 1, 1913

**EXTRA STRONG**

Size Inches	Price per Foot	DIAMETER, INCHES		Thickness Inches	Weight, per Foot Plain Ends Pounds
		External	Internal		
1/8	.12	.405	.215	.095	.314
1/4	.07 1/2	.540	.302	.119	.535
3/8	.07 1/2	.675	.423	.126	.738
1/2	.11	.840	.546	.147	1.087
3/4	.15	1.050	.742	.154	1.473
1	.22	1.315	.957	.179	2.171
1 1/4	.30	1.660	1.278	.191	2.996
1 1/2	.36 1/2	1.900	1.500	.200	3.631
2	.50 1/2	2.375	1.939	.218	5.022
2 1/2	.77	2.875	2.323	.276	7.661
3	1.03	3.500	2.900	.300	10.252
3 1/2	1.25	4.	3.364	.318	12.505
4	1.50	4.500	3.826	.337	14.983
4 1/2	1.80	5.	4.290	.355	17.611
5	2.08	5.563	4.813	.375	20.778
6	2.86	6.625	5.761	.432	28.573
7	3.81	7.625	6.625	.500	38.048
8	4.34	8.625	7.625	.500	43.388
9	4.90	9.625	8.625	.500	48.728
10	5.48	10.750	9.750	.500	54.735
11	6.10	11.750	10.750	.500	60.075
12	6.55	12.750	11.750	.500	65.415

The permissible variation in weight is 5 per cent above and 5 per cent below.

**DOUBLE EXTRA STRONG**

Size Inches	Price per Foot	DIAMETER, INCHES		Thickness Inches	Weight, per Foot Plain Ends Pounds
		External	Internal		
1/2	.32	.840	.252	.294	1.714
3/4	.35	1.050	.434	.308	2.440
1	.37	1.315	.599	.358	3.659
1 1/4	.52 1/2	1.660	.896	.382	5.214
1 1/2	.65	1.900	1.100	.400	6.408
2	.91	2.375	1.503	.436	9.029
2 1/2	1.37	2.875	1.771	.552	13.695
3	1.86	3.500	2.300	.600	18.583
3 1/2	2.30	4.	2.728	.636	22.850
4	2.76	4.500	3.152	.674	27.541
4 1/2	3.26	5.	3.580	.710	32.530
5	3.86	5.563	4.063	.750	38.552
6	5.32	6.625	4.897	.864	53.160
7	6.35	7.625	5.875	.875	63.079
8	7.25	8.625	6.875	.875	72.424

The permissible variation in weight is 10 per cent above and 10 per cent below.

The following notes apply to both tables:

Furnished with plain ends and in random lengths, unless otherwise ordered.

Random length of extra strong and double extra strong pipe is considered to be 12 feet to 22 feet, we to have the privilege, however, of supplying not exceeding 5 per cent of total order in lengths from 6 to 12 feet.

For pipe fitted with threads and couplings; for cut lengths, or galvanized or coated pipe, an extra charge will be made

## LARGE O. D. PIPE

## PLAIN ENDS

## PRICE LIST

Revised and Adopted January 1, 1913  
All Weights and Dimensions are Nominal

Outside Diam. Inches	PRICE, PER FOOT											
	THICKNESS, INCHES											
	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1	1 1/8
14	3.68	4.57	5.46	6.34	7.21	8.08	8.93	9.78	10.62	12.27	13.89	15.47
15	3.94	4.91	5.86	6.81	7.75	8.68	9.60	10.51	11.42	13.20	14.96	16.68
16	4.21	5.24	6.26	7.28	8.28	9.28	10.27	11.25	12.22	14.14	16.03	17.88
17	4.48	5.57	6.66	7.74	8.82	9.88	10.94	11.98	13.02	15.07	17.09	19.08
18	4.74	5.91	7.06	8.21	9.35	10.48	11.60	12.72	13.82	16.01	18.16	20.28
20	.....	6.58	7.86	9.15	10.42	11.68	12.94	14.19	15.42	17.88	20.30	22.68
21	.....	6.91	8.27	9.61	10.95	12.28	13.61	14.92	16.23	.....	.....	.....
22	.....	7.24	8.67	10.08	11.49	12.88	14.27	15.65	17.03	.....	.....	.....
24	.....	.....	9.47	11.01	12.55	14.09	15.61	17.12	18.63	.....	.....	.....
26	.....	.....	10.27	11.95	13.62	15.29	16.94	18.59	20.23	.....	.....	.....
28	.....	.....	.....	12.88	14.69	16.49	18.28	20.06	21.83	.....	.....	.....
30	.....	.....	.....	13.82	15.76	17.69	19.61	21.53	23.43	.....	.....	.....

## ESTIMATED WEIGHTS

The Permissible Variation in Weight is 5 Per Cent Above and 5 Per Cent Below

Outside Diam. Inches	WEIGHT, POUNDS, PER FOOT					
	THICKNESS, INCHES					
	1/4	5/16	3/8	7/16	1/2	9/16
14	36.713	45.682	54.568	63.371	72.091	80.726
15	39.383	49.020	58.573	68.044	77.431	86.734
16	42.053	52.357	62.579	72.716	82.771	92.742
17	44.723	55.695	66.584	77.389	88.111	98.749
18	47.393	59.032	70.589	82.061	93.451	104.757
20	.....	65.708	78.599	91.407	104.131	116.772
21	.....	69.045	82.604	96.079	109.471	122.780
22	.....	72.383	86.609	100.752	114.811	128.787
24	.....	.....	94.619	110.097	125.491	140.802
26	.....	.....	102.629	119.442	136.172	152.818
28	.....	.....	.....	128.787	146.852	164.833
30	.....	.....	.....	138.132	157.532	176.848

Outside Diam. Inches	WEIGHT, POUNDS, PER FOOT				
	THICKNESS, INCHES				
	5/8	11/16	3/4	7/8	1
14	89.279	97.748	106.134	122.654	138.842
15	95.954	105.091	114.144	132.	149.522
16	102.629	112.433	122.154	141.345	160.202
17	109.304	119.776	130.164	150.690	170.882
18	115.979	127.188	138.174	160.035	181.562
20	129.330	141.804	154.194	178.725	202.923
21	136.005	149.146	162.204	.....	.....
22	142.680	156.489	170.215	.....	.....
24	156.030	171.174	186.235	.....	.....
26	169.380	185.859	202.255	.....	.....
28	182.730	200.545	218.275	.....	.....
30	196.081	215.230	234.296	.....	.....

This pipe will be shipped in random lengths, plain ends, unless otherwise ordered. For cut lengths an extra charge above random will be made. For threaded pipe an extra charge above plain end will be made.

## IRON OR STEEL WROUGHT PIPE

### FOR STEAM, GAS OR WATER

#### THE MEANING OF TRADE TERMS AS APPLIED TO PIPE

##### WROUGHT IRON PIPE

This term is now used indiscriminately to designate all butt or lap welded pipe, whether made of wrought iron or steel. If your requirements demand the use of either steel or iron, state plainly on your order:

**"THIS PIPE MUST BE WROUGHT STEEL"**

OR

**"THIS PIPE MUST BE WROUGHT IRON"**

Otherwise we shall ship either at our option.

##### EXTRA STRONG PIPE

This term designates a heavy pipe, from  $\frac{1}{8}$  to 12-inch only, made of either puddled wrought iron or soft steel. Unless directed to the contrary, we usually ship wrought steel pipe. Extra strong pipe is always shipped with plain ends and without couplings, unless we receive instructions to thread and couple, for which there is an extra charge.

This term when applied to pipe larger than 8-inch is somewhat indefinite, as 9, 10 and 12-inch are made both  $\frac{7}{16}$  and  $\frac{1}{2}$  inch thick. We carry these sizes in stock  $\frac{1}{2}$  inch thick, and always furnish that thickness on open orders.

##### DOUBLE EXTRA STRONG PIPE

This pipe is approximately twice as heavy as Extra Strong, and is made from  $\frac{1}{2}$  to 8-inch in both wrought iron and steel. It is difficult, however, to find any quantity in "wrought iron," and our stock is usually soft wrought steel. This pipe is shipped with plain ends, without couplings, unless we receive orders to thread and couple, for which there is an extra charge.

##### PIPE TRADE CUSTOMS

Every piece of pipe, tubing, casing, boiler tubing, line pipe and drive pipe is carefully tested, but as it is impossible to always detect imperfections, the only guarantee that is given is to furnish new material for such goods as are found defective. Under no circumstances is the seller responsible for any damages beyond the price of the goods. No charges for labor or expense required to repair defective goods or damage occasioned by them will be allowed. If the goods are defective, the measure of damages is the price of the defective pieces.

Claims for shortage or deductions for erroneous charges must be promptly presented or will not be allowed.

The outside diameter of goods heavier than standard is the same as standard, the extra thickness being on the inside, so that the different weights of the same size use the same coupling.

Special goods made to specifications, where buyer is to inspect, must be inspected and accepted before shipment is made. After shipment is made our responsibility ceases.



# STANDARD STEEL AND IRON BOILER TUBES

All Weights and Dimensions are Nominal

Adopted January 1, 1913

External Diam. Inches	STANDARD THICKNESS		Steel Weight per Foot Pounds	PRICE, PER FOOT											
	Birming- ham Wire Gauge	Inches		STANDARD THICKNESS INCHES		ONE EXTRA WIRE GAUGE		TWO EXTRA WIRE GAUGES		THREE EXTRA WIRE GAUGES		FOUR EXTRA WIRE GAUGES			
				Steel	Iron	Steel	Iron	Steel	Iron	Steel	Iron	Steel	Iron		
1 3/4	13	.095	1.679	.22	.22	.26	.26	.28	.30	.31	.33	.34	.36		
2	13	.095	1.932	.20	.20	.22	.24	.24	.28	.27	.32	.29	.36		
2 1/4	13	.095	2.186	.22	.22	.25	.27	.28	.31	.30	.35	.33	.38		
2 1/2	12	.109	2.783	.28	.28	.31	.34	.34	.39	.37	.44	.41	.49		
2 3/4	12	.109	3.074	.31	.31	.34	.38	.38	.44	.42	.51	.46	.57		
3	12	.109	3.365	.34	.34	.37	.41	.41	.48	.45	.55	.50	.62		
3 1/4	11	.120	4.011	.40	.40	.45	.48	.50	.55	.55	.63	.59	.70		
3 1/2	11	.120	4.331	.43	.43	.49	.52	.53	.60	.59	.68	.64	.76		
3 3/4	11	.120	4.652	.47	.47	.52	.56	.57	.65	.63	.73	.69	.82		
4	10	.134	5.532	.55	.55	.61	.65	.68	.74	.74	.83	.83	.92		
4 1/2	10	.134	6.248	.62	.62	.69	.73	.77	.83	.83	.94	.93	1.04		
5	9	.148	7.669	.76	.76	.86	.88	.93	1.00	1.04	1.10	1.13	1.23		
6	8	.165	10.282	1.02	1.02	1.12	1.12	1.26	1.26	1.36	1.36	1.47	1.47		
7	8	.165	12.044	1.20	1.20	1.32	1.32	1.48	1.48	1.60	1.60	1.72	1.72		
8	8	.165	13.807	1.38	1.38	1.50	1.50	1.69	1.69	1.83	1.83	1.97	1.97		
9	7	.180	16.955	1.70	1.70	1.91	1.91	2.07	2.07	2.23	2.23	2.42	2.42		
10	6	.203	21.240	2.12	2.12	2.30	2.30	2.49	2.49	2.70	2.70	2.95	2.95		
11	5	.220	25.329	2.53	2.53	2.74	2.74	2.98	2.98	3.26	3.26	3.43	3.43		
12	4 1/2	.229	28.788	2.88	2.88	3.12	3.12	3.40	3.40	3.65	3.65	4.00	4.00		
13	4	.238	32.439	3.24	3.20	3.53	3.53	3.86	3.86	4.07	4.07	4.60	4.60		
14	..	.248	36.424	....	....	....	....	....	....	....	....	....	....		
15	3	.259	40.775	....	....	....	....	....	....	....	....	....	....		
16	..	.270	45.359	....	....	....	....	....	....	....	....	....	....		

Above prices are for tubes 2 3/4-inch and larger up to 22 feet long and tubes 2 1/2-inch and under up to 18 feet long; for tubes in excess of these lengths extra charge will be made.

Tubes more than four gauges heavier than standard will be charged per pound.

Boiler tubes to special specifications, special prices on application.

## WEIGHTS OF EXTRA GAUGE STEEL TUBES

Outside Diameter .....inches	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4
One Extra Gauge, per foot.....pounds	1.910	2.201	2.492	3.050	3.370	3.691	4.459
Two " Gauges, " " " " " "	2.089	2.409	2.729	3.386	3.743	4.101	4.903
Three " " " " " " " "	2.312	2.670	3.028	3.717	4.112	4.508	5.436
Four " " " " " " " "	2.532	2.927	3.322	4.114	4.555	4.995	5.901
Outside Diameter .....inches	3 1/2	3 3/4	4	4 1/2	5	6	7
One Extra Gauge, per foot.....pounds	4.817	5.175	6.088	6.879	8.520	11.188	13.110
Two " Gauges, " " " " " "	5.298	5.693	6.758	7.639	9.266	12.568	14.736
Three " " " " " " " "	5.877	6.317	7.343	8.304	10.400	13.580	15.930
Four " " " " " " " "	6.382	6.863	8.232	9.316	11.231	14.646	17.188
Outside Diameter .....inches	8	9	10	11	12	13	.....
One Extra Gauge, per foot.....pounds	15.033	19.072	22.979	27.355	31.188	35.243	.....
Two " Gauges, " " " " " "	16.904	20.629	24.813	29.711	34.008	38.569	.....
Three " " " " " " " "	18.280	22.271	26.945	32.503	36.512	40.691	.....
Four " " " " " " " "	19.730	24.179	29.470	34.283	39.918	45.971	.....

## SPIRAL RIVETED FLANGED PRESSURE PIPE GALVANIZED OR ASPHALTED

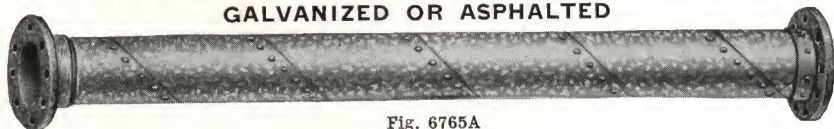


Fig. 6765A

Specify maximum working pressure under which piping will operate.  
Galvanized pipe is furnished in 20-foot lengths; asphalted, in 25-foot lengths. Prices include A. & R. flanges attached.

Inside Diameter .....	inches	3	4	5	6	7	8	9	10	11
Thickness, B. W. G. ....	number	20	20	20	18	18	18	16	16	16
Approximate Weight per Foot ..	pounds	2	3	3½	5	6	6½	9	10½	11½
Price, Galvanized .....	per foot	.55	.72	.85	1.13	1.30	1.49	2.01	2.17	2.30
“ Asphalted .....	“	.38	.49	.56	.78	.89	1.02	1.43	1.54	1.63

Inside Diameter .....	inches	12	13	14	15	16	18	20	22	24
Thickness, B. W. G. ....	number	16	16	14	14	14	14	14	12	12
Approximate Weight per Foot ..	pounds	12½	14	18½	20	22	25	27½	39½	43
Price, Galvanized .....	per foot	2.65	2.96	3.66	4.00	4.42	5.06	5.65	7.60	8.20
“ Asphalted .....	“	1.91	2.04	2.65	2.89	3.14	3.62	4.08	5.65	6.17

Weights are based on asphalted pipe.

### CONNECTIONS USED WITH SPIRAL RIVETED PIPE FLANGE JOINTS                      BOLTED JOINTS

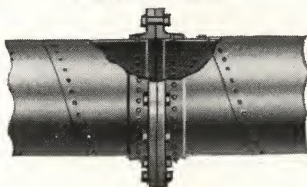


Fig. 6765B

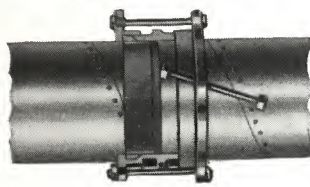


Fig. 6765C

### SLIP JOINTS

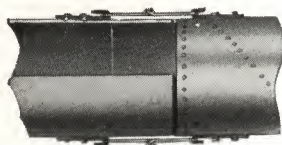


Fig. 6765D

Size Inches	*PRICE, FLANGES RIVETED TO PIPE, EACH		Price Bolted Joints Complete Black, Each	Size Inches	*PRICE, FLANGES RIVETED TO PIPE, EACH		Price Bolted Joints Complete Black, Each
	Black	Galvanized			Black	Galvanized	
3	.78	.87	1.22	12	3.52	4.50	6.70
4	.94	1.06	1.70	14	4.15	5.85	8.70
5	1.10	1.25	2.00	15	4.97	6.94	10.45
6	1.52	1.71	2.90	16	6.02	8.46	12.55
7	1.95	2.20	3.20	18	6.92	9.57	13.35
8	2.21	2.50	3.40	20	7.74	10.60	13.45
9	2.78	3.15	3.90	22	11.34	15.40	15.00
10	3.05	3.50	6.00	24	12.26	16.70	17.00

\*Price is for one flange only. Bolts and gaskets are not included.  
Pipe with slip joints, prices on application.



## SPECIAL PIPE CUT TO ORDER

DIAGRAM SHOWING SCREWED VALVE AND FITTINGS

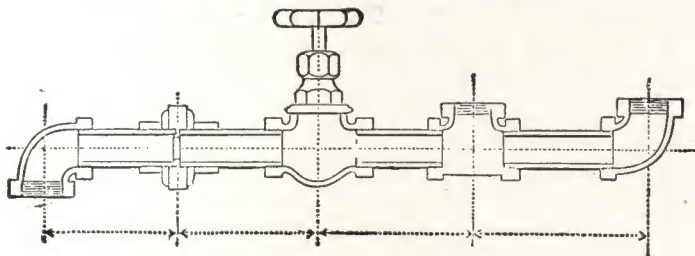


Fig. 3163A

DIAGRAM SHOWING FLANGED VALVE AND FITTINGS

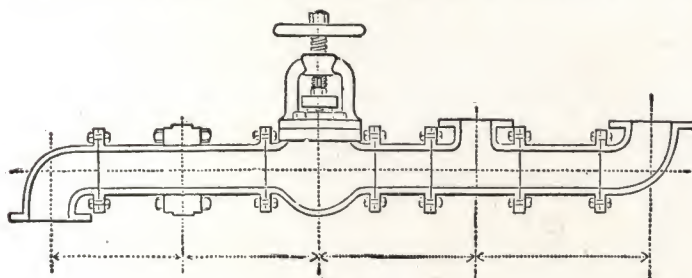


Fig. 3163B

We are equipped with the most improved facilities for cutting, threading and fitting all sizes of pipe to sketch.

In laying out work of this kind great care should be taken in making sketches. All measurements should be given center to center, as shown in above diagrams. It is also necessary to know for what purpose the pipe is to be used and pressure required to stand.

### CUTTING STANDARD PIPE THREADS

Size..... inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price..... each	.05	.05	.05	.05	.05	.06	.07	.08	.10	.15
Size..... inches	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10
Price..... each	.20	.25	.35	.45	.55	.70	.85	1.00	1.25	1.50
Size..... inches	12	14	15	16	18	20	22	24	....	....
Price..... each	2.50	3.50	3.50	5.00	8.00	10.00	12.50	15.00	....	....

### LOCKNUT THREADS

Size..... inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price..... each	.10	.10	.10	.10	.12	.14	.16	.20	.30	.40	.50	.70

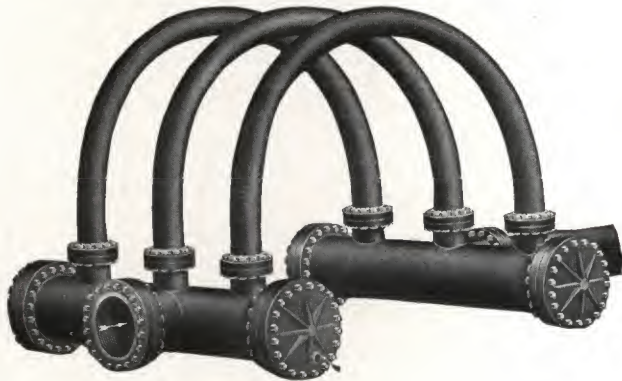
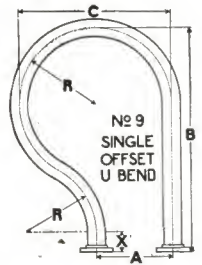
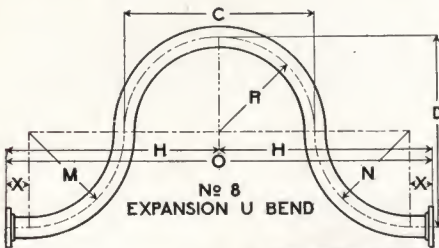
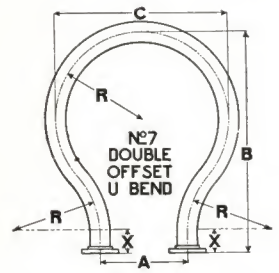
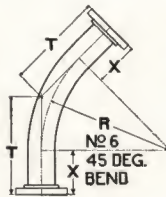
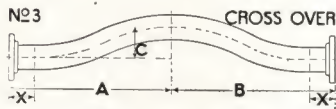
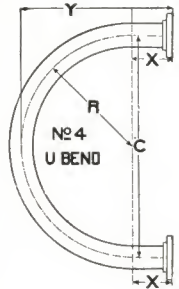
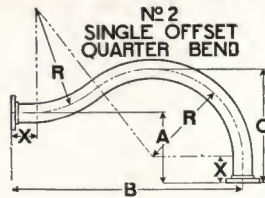
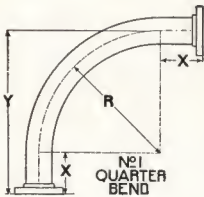
### LOCKNUT NIPPLES

Made to Order and Charged as Cut Pipe, Threads Extra



# PIPE BENDS

MADE FROM LAP WELDED STEEL PIPE



## PIPE BENDS

## MADE FROM LAP WELDED STEEL PIPE

Size of Pipe Inches	R-M-N Advisable Radius of Bends Inches	T Center to End or Face of Flanges	X Length of Tangents or Straight Pipe on Each Bend Inches	Y Center of Bends to Face of Flanges or Ends of Pipe
2½	12½	9¾ in.	4	1 ft. 4½ in.
3	15	10¼ "	4	1 " 7 "
3½	17½	1 ft. 1¼ in.	5	1 " 10½ "
4	20	1 " 1¼ "	5	2 " 1 "
4½	22½	1 " 3⅝ "	6	2 " 4½ "
5	25	1 " 4⅜ "	6	2 " 7 "
6	30	1 " 7⅞ "	7	3 " 1 "
7	35	1 " 10½ "	8	3 " 7 "
8	40	2 " 1⅞ "	9	4 " 1 "
9	45	2 " 5⅝ "	11	4 " 8 "
10	50	2 " 8¾ "	12	5 " 2 "
12	60	3 " 2⅞ "	14	6 " 2 "
14	70	3 " 9 "	16	7 " 2 "
15	75	3 " 11⅞ "	16	7 " 7 "
16	80	4 " 3⅞ "	18	8 " 2 "
18	108	5 " 2¾ "	18	10 " 6 "
20	120	5 " 7¾ "	18	11 " 6 "
22	132	6 " 5⅞ "	18	12 " 6 "
24	144	6 " 5⅝ "	18	13 " 6 "

Size of Pipe Inches	Lineal Feet of Pipe in Each Quarter Bend	Lineal Feet of Pipe in Each "U" Bend	Lineal Feet of Pipe in Each 45° Bend	Minimum Radius to which Bends Can be made from Extra Strong Pipe only Inches
2½	2 ft. 3¾ in.	3 ft. 11¼ in.	1 ft. 5⅞ in.	7
3	2 " 7¾ "	4 " 7⅞ "	1 " 7⅞ "	8
3½	3 " 1½ "	5 " 5 "	1 " 11¾ "	10
4	3 " 5½ "	6 " 1 "	2 " 1¾ "	12
4½	3 " 11½ "	6 " 10¾ "	2 " 5¾ "	14
5	4 " 3¼ "	7 " 6⅝ "	2 " 7½ "	15
6	5 " 1⅞ "	9 " 1¼ "	3 " 1½ "	20
7	5 " 11 "	10 " 6 "	3 " 7⅞ "	24
8	6 " 9 "	11 " 11¾ "	4 " 1½ "	28
9	7 " 8¾ "	13 " 7⅞ "	4 " 9¼ "	35
10	8 " 6½ "	15 " 1⅞ "	5 " 3¼ "	40
12	10 " 1¼ "	18 " 1¼ "	6 " 3¼ "	50
14	11 " 10 "	21 " "	7 " 3 "	65
15	12 " 6 "	.....	7 " 7 "	70
16	13 " 5¾ "	.....	8 " 2¾ "	78
18	17 " 1¾ "	.....	10 " 7⅞ "	88
20	18 " 8½ "	.....	10 " 10¼ "	104
22	20 " 3 "	.....	11 " 7¾ "	132
24	21 " 10 "	.....	12 " 5⅞ "	144

Full dimension sketch or blue print, should accompany all requests for prices on pipe bends.

Drawing submitted should include dimensions A, B, C, D, H and O where necessary, and any other variations from dimensions as given in the above table.

Lineal feet of pipe used in bends will vary, according to dimensions varying from the above table.

## NIPPLES

SHORT NIPPLE



Fig. 45A

SHOULDER NIPPLE

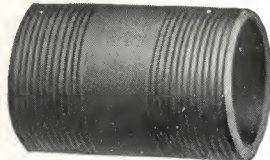


Fig. 45B

## BLACK RIGHT-HAND NIPPLES

LENGTH, INCHES						Size, Inches	PRICE EACH		PRICE, EXTRA LONG NIPPLES, EACH										
Close	Short	Long					Close or Short	Long	LENGTH, INCHES										
									4	5	6	7	8	9	10	11	12		
¾	1½	2	2½	3	3½	⅛	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19		
⅞	1½	2	2½	3	3½	¼	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19		
1	1½	2	2½	3	3½	⅜	.04	.06	.07	.08	.10	.12	.14	.15	.17	.18	.19		
1⅛	1½	2	2½	3	3½	½	.05	.07	.08	.10	.12	.14	.16	.18	.20	.22	.23		
1⅜	2	2½	3	3½	4	¾	.06	.09	...	.11	.13	.17	.18	.20	.22	.24	.26		
1½	2	2½	3	3½	4	1	.08	.13	...	.15	.18	.23	.25	.28	.31	.34	.36		
1⅝	2½	3	3½	4	4½	1¼	.11	.17	...	.20	.24	.29	.33	.36	.40	.44	.47		
1¾	2½	3	3½	4	4½	1½	.13	.20	...	.25	.29	.36	.40	.45	.50	.54	.59		
2	2½	3	3½	4	4½	2	.18	.27	...	.32	.38	.50	.54	.59	.65	.72	.77		
2½	3	3½	4	4½	5	2½	.39	.59	...	...	.68	.90	.97	1.06	1.17	1.26	1.35		
2½	3	3½	4	4½	5	3	.48	.72	...	...	.85	1.08	1.20	1.33	1.45	1.58	1.70		
2¾	4	4½	5	5½	6	3½	.75	1.05	...	...	...	1.30	1.45	1.60	1.75	1.90	2.05		
3	4	4½	5	5½	6	4	.85	1.20	...	...	...	1.52	1.69	1.87	2.05	2.22	2.40		
3	4	4½	5	5½	6	4½	1.25	1.70	...	...	...	2.25	2.50	2.75	2.95	3.17	3.40		
3¼	4½	5	5½	6	6½	5	1.55	2.45	...	...	...	2.58	2.83	3.10	3.35	3.60	3.85		
3¼	4½	5	5½	6	6½	6	1.85	2.90	...	...	...	3.05	3.35	3.70	4.00	4.30	4.65		
3½	5	...	...	...	...	7	3.20	.....	...	...	3.60	4.05	4.45	4.90	5.30	5.75	6.15		
3½	5	...	...	...	...	8	3.55	.....	...	...	4.05	4.55	5.05	5.50	6.00	6.50	7.00		
4	5	...	...	...	...	9	5.25	.....	...	...	...	...	6.50	7.10	7.75	8.40	9.00		
4	5	...	...	...	...	10	6.75	.....	...	...	...	...	8.25	8.90	9.70	10.40	11.15		
4	5	...	...	...	...	12	8.00	.....	...	...	...	...	10.00	10.80	11.75	12.70	13.65		

Nipples made to order from extra heavy pipe at double above list. Nipples larger than 12 inches made to order and charged as cut pipe. Threads extra.



## NIPPLES

## BLACK RIGHT AND LEFT-HAND NIPPLES

LENGTH, INCHES						Size, Inches	PRICE, EA.		PRICE, EXTRA LONG NIPPLES, EACH									
Close	Short	Long					Close or Short	Long	LENGTH, INCHES									
									4	5	6	7	8	9	10	11	12	
3/4	1 1/8	2	2 1/2	3	3 1/2	1/8	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27	
7/8	1 1/2	2	2 1/2	3	3 1/2	1/4	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27	
1	1 1/2	2	2 1/2	3	3 1/2	3/8	.05	.08	.09	.11	.13	.16	.18	.20	.23	.25	.27	
1 1/8	1 1/2	2	2 1/2	3	3 1/2	1/2	.07	.10	.11	.13	.16	.18	.21	.24	.27	.29	.31	
1 3/8	2	2 1/2	3	3 1/2	4	3/4	.08	.12	....	.15	.17	.23	.25	.27	.29	.32	.35	
1 1/2	2	2 1/2	3	3 1/2	4	1	.11	.18	....	.20	.24	.31	.33	.37	.41	.45	.48	
1 5/8	2 1/2	3	3 1/2	4	4 1/2	1 1/4	.15	.23	....	.27	.32	.39	.45	.50	.55	.60	.65	
1 3/4	2 1/2	3	3 1/2	4	4 1/2	1 1/2	.18	.27	....	.34	.39	.48	.52	.60	.67	.72	.80	
2	2 1/2	3	3 1/2	4	4 1/2	2	.24	.36	....	.43	.51	.67	.72	.80	.87	.96	1.03	
2 1/2	3	3 1/2	4	4 1/2	5	2 1/2	.52	.79	....	....	.91	1.20	1.30	1.40	1.55	1.68	1.80	
2 3/4	3	3 1/2	4	4 1/2	5	3	.65	.96	....	....	1.13	1.44	1.60	1.77	1.93	2.10	2.27	
3	4	4 1/2	5	5 1/2	6	3 1/2	1.00	1.40	....	....	....	1.75	1.95	2.15	2.35	2.55	2.75	
3 1/4	4	4 1/2	5	5 1/2	6	4	1.15	1.60	....	....	....	2.00	2.25	2.50	2.75	3.00	3.25	

Add 60 per cent to above prices for galvanized right and left nipples.

## GALVANIZED RIGHT-HAND NIPPLES

LENGTH, INCHES						Size, Inches	PRICE, EA.		PRICE, EXTRA LONG NIPPLES, EACH									
Close	Short	Long					Close or Short	Long	LENGTH, INCHES									
									4	5	6	7	8	9	10	11	12	
3/4	1 1/2	2	2 1/2	3	3 1/2	1/8	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34	
7/8	1 1/2	2	2 1/2	3	3 1/2	1/4	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34	
1	1 1/2	2	2 1/2	3	3 1/2	3/8	.06	.11	.12	.15	.17	.21	.24	.26	.29	.31	.34	
1 1/8	1 1/2	2	2 1/2	3	3 1/2	1/2	.06	.11	.13	.16	.18	.23	.26	.28	.31	.33	.36	
1 3/8	2	2 1/2	3	3 1/2	4	3/4	.08	.14	....	.18	.21	.26	.29	.32	.35	.38	.41	
1 5/8	2 1/2	3	3 1/2	4	4 1/2	1 1/4	.11	.19	....	.24	.28	.34	.38	.42	.47	.51	.55	
1 7/8	2 1/2	3	3 1/2	4	4 1/2	1 1/2	.17	.29	....	.32	.38	.45	.51	.57	.63	.69	.75	
2	2 1/2	3	3 1/2	4	4 1/2	2	.21	.35	....	.39	.46	.55	.63	.70	.77	.84	.91	
2 1/4	2 1/2	3	3 1/2	4	4 1/2	2 1/2	.27	.47	....	.52	.61	.74	.83	.93	1.03	1.13	1.23	
2 3/4	3	3 1/2	4	4 1/2	5	3	.56	.86	....	....	1.00	1.26	1.41	1.56	1.71	1.86	2.01	
3	3	3 1/2	4	4 1/2	5	3 1/2	.70	1.10	....	....	1.30	1.60	1.80	2.00	2.20	2.40	2.60	
3 1/4	4	4 1/2	5	5 1/2	6	4	1.20	1.70	....	....	....	2.10	2.35	2.60	2.85	3.15	3.40	
3 1/2	4	4 1/2	5	5 1/2	6	4 1/2	1.35	1.87	....	....	....	2.30	2.60	2.90	3.20	3.50	3.80	
3 3/4	4	4 1/2	5	5 1/2	6	5	1.85	2.60	....	....	....	3.30	3.65	4.05	4.45	4.85	5.25	
3 1/2	4 1/2	5	5 1/2	6	6 1/2	5	2.30	3.15	....	....	....	3.75	4.20	4.60	5.00	5.40	5.85	
3 3/4	4 1/2	5	5 1/2	6	6 1/2	6	2.80	4.25	....	....	....	4.50	5.00	5.55	6.05	6.60	7.15	
3 1/2	5	....	....	....	....	7	4.25	....	....	....	....	4.95	5.65	6.35	7.05	7.75	8.45	
3 1/2	5	....	....	....	....	8	5.00	....	....	....	....	5.80	6.65	7.50	8.35	9.25	10.10	

Nipples made to order from galvanized extra heavy pipe at double above list.

## RIGHT AND LEFT-HAND NIPPLES AND LONG SCREWS

### R. AND L. NIPPLES WITH HEXAGON CENTERS

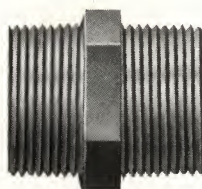


Fig. 6869A

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price.....each	.20	.20	.20	.25	.30	.40	.50	.70	1.10	1.50	1.90	2.40

Right-hand hexagon nipples made to order at a special price.

### LONG SCREWS

With Coupling and Locknut Faced



Fig. 6869B

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Standard Length .inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	7	8	$8\frac{1}{2}$	9
Price, Black .....each	.30	.35	.40	.55	.75	1.00	1.30	1.70	2.70	3.70	5.40	6.60
“ Galvanized.. “	.35	.40	.50	.66	1.00	1.25	1.60	2.10	3.10	4.70	6.50	7.75

Long screws, longer than standard, made to order and charged as cut pipe.

In ordering, always specify the length of thread wanted.

Threads, couplings and locknuts, extra.

Long screws made to order from extra heavy pipe.

### TANK OR LOCK NUT NIPPLES



Fig. 6869C

List prices same as Standard Nipples. These Nipples always furnished 6 inches long unless otherwise specified.

## WROUGHT IRON COUPLINGS

## STANDARD

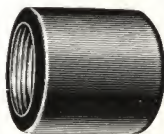


Fig. 7188A

Size of Pipe Inches	Nominal Outside Diameter Inches	Length of Coupling Inches	Average Weight of Coupling Pounds	No. of Threads per Inch of Screw	PRICE, EACH				
					Black	Galv.	Right and Left Black	Right-Hand Faced Black	Right-Hand Faced Galv.
1/8	19/32	15/16	.03	27	.05	.06	....	....	....
1/4	3/4	1 1/32	.07	18	.05	.06	.07	.09	.14
3/8	29/32	1 5/32	.11	18	.06	.08	.08	.10	.15
1/2	1 3/32	1 7/16	.15	14	.07	.10	.11	.12	.18
3/4	1 11/32	1 9/16	.25	14	.10	.13	.15	.16	.24
1	1 5/8	1 13/16	.42	11 1/2	.13	.18	.20	.22	.33
1 1/4	1 31/32	2 1/16	.60	11 1/2	.17	.25	.25	.30	.45
1 1/2	2 15/64	2 3/16	.81	11 1/2	.21	.32	.30	.40	.60
2	2 23/32	2 9/16	1.18	11 1/2	.28	.40	.50	.50	.75
2 1/2	3 5/16	2 7/8	1.70	8	.40	.55	.85	.70	1.00
3	3 15/16	3 1/16	2.45	8	.60	.80	1.20	.90	1.35
3 1/2	4 7/16	3 7/16	3.40	8	.80	1.05	1.60	1.20	1.80
4	4 15/16	3 7/16	3.50	8	1.00	1.40	2.00	1.50	2.25
4 1/2	5 17/32	3 5/8	4.70	8	1.50	2.00	....	2.10	....
5	6 1/4	4 1/8	8.50	8	1.65	2.25	....	2.40	....
6	7 9/32	4 1/8	9.70	8	2.40	3.25	....	3.60	....
7	8 9/32	4 1/8	11.10	8	3.25	....	....	....	....
8	9 1/4	4 5/8	13.60	8	4.25	....	....	....	....
9	10 5/16	5 1/8	17.40	8	5.50	....	....	....	....
10	11 5/8	6 1/8	31.10	8	7.50	....	....	....	....
12	13 7/8	6 1/8	44.20	8	10.00	....	....	....	....

1 1/4-inch turned and faced couplings to fit inside of 2-inch wrought pipe. Price on application.

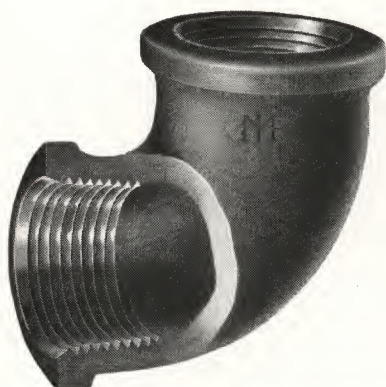
## MISCELLANEOUS SIZES

Size.....inches	3/8	1/2	1	1	1	1 1/4	1 1/4	2
Outside Diameter.....inches	15/16	1 1/8	1 7/8	1 21/32	2	1 5/16	2 9/32	2 5/16
Length....."	1 3/4	2	2 7/8	3 1/2	3 1/8	3	3 1/4	3 3/4

These couplings are made to order only. Prices according to quantity, on application.



## MALLEABLE IRON FITTINGS



### QUALITY OF IRON

Malleable iron, when made by the air furnace process, is considered by those who know, to be a stronger and better iron than that made in the cupola. It is for that reason we make our malleable fittings from air furnace refined malleable iron.

We make our malleable fittings from the best quality of air furnace refined malleable iron, and we believe that this iron, being closer and denser than cupola iron, is better adapted for pipe fittings.

Our fittings when submitted to the hammer test show a high degree of malleability and are not easily broken.

### PATTERNS

We make our fittings in both flat band and plain patterns. Our flat band fittings are made from new patterns, scientifically designed by recognized experts, constructed in conformity with the latest ideas and are uniform as to proportions. Our elbows, tees and crosses of the same size, having the same center to face dimensions, will commend the favorable notice of practical men.

### THREADING AND REAMING

Our fittings are reamed or counterbored and are threaded strictly in accordance with Briggs standard gauge,  $\frac{3}{4}$ -inch taper to the foot, and conform in this respect with the taper of the thread on the pipe. All fittings are tapped on modern machinery, securing absolutely true angles and perfect alignment.

### WORKING PRESSURE

Our malleable steam fittings are suitable for steam working pressures up to 150 pounds, although, if proper care is exercised in installing them, they will stand higher pressures, but as is well known, fittings of all kinds are subject to strains due to expansion or contraction, or the making up of joints, so we do not recommend our steam fittings for higher than the working pressure named.

### STOCK SIZES

We show on pages 16-19, a large line of straight and reducing sizes and believe these are sufficient to cover the requirements of the trade. To avoid making fittings to order we recommend the use of bushings, but when it is absolutely necessary to have special fittings, we will be glad to quote price on receipt of specifications. This price in all cases will be found comparatively high.

### GALVANIZED FITTINGS

Such sizes of malleable fittings as we list on pages 16-19, and mark with (\*) are carried in stock galvanized; other sizes will be made to order only at a special price, according to quantity wanted.

### SPECIAL FITTINGS

We are prepared to make special fittings at any time and will quote prices on receipt of blue prints or samples, together with full information as to quantity wanted, etc.

# **MALLEABLE IRON FITTINGS** **STANDARD CLASSIFICATION AND PRICE LIST**

Adopted June 10, 1907

Class .....	A	B	C
Caps .....	$\frac{1}{8}$	$\frac{1}{4}$ to 1, inclusive All Sizes	$\frac{1}{4}$ and Larger
Chandelier Hooks .....	.....	" "	.....
"    Loops .....	.....	" "	.....
Couplings, R. H. ....	$\frac{1}{8}$	$\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ and $\frac{3}{4}$	1 and Larger
"    R. and L. ....	$\frac{1}{8}$	$\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ " $\frac{3}{4}$	1 " "
"    Reducing .....	$\left\{ \begin{array}{l} \frac{1}{4} \times \frac{1}{8} \\ \frac{3}{8} \times \frac{1}{8} \\ \frac{1}{2} \times \frac{1}{8} \end{array} \right\}$	$\frac{3}{8} \times \frac{1}{4}$ to $1 \times \frac{3}{4}$	* $\frac{1}{4}$ and Larger
Crosses .....	.....	$\frac{1}{4}$ to 1, inclusive 1 and Smaller	$\frac{1}{4}$ and Larger
"    Reducing .....	.....	.....	* $\frac{1}{4}$ " "
Elbows .....	$\left\{ \begin{array}{l} \frac{1}{8} \times \frac{1}{8} \\ \frac{1}{4} \times \frac{1}{8} \\ \frac{3}{8} \times \frac{1}{8} \\ \frac{1}{2} \times \frac{1}{8} \end{array} \right\}$	$\left\{ \begin{array}{l} \frac{3}{8} \times \frac{1}{4} \\ \frac{1}{2} \times \frac{1}{4} \\ \frac{1}{4}, \frac{3}{8}, \frac{1}{2} \\ \frac{1}{2} \times \frac{3}{8} \end{array} \right\}$	* $\frac{3}{4}$ and Larger
Elbows, 45° .....	.....	$\frac{1}{4}$ to 2, inclusive	$2\frac{1}{2}$ and Larger
"    60° .....	.....	$\frac{1}{4}$ to 2	.....
"    Drop .....	.....	All Sizes	.....
"    R. and L. ....	$\frac{1}{4}$ , $\frac{3}{8}$	$\frac{1}{2}$ , $\frac{3}{4}$ , 1	* $\frac{1}{4}$ and Larger
"    Side Outlet .....	.....	All Sizes	.....
"    Street .....	$\frac{1}{8}$	$\left\{ \begin{array}{l} \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4} \\ \frac{3}{4} \times \frac{1}{2} \\ 1 \times \frac{1}{2}, 1 \times \frac{3}{4} \end{array} \right\}$	1 and Larger
"    "    45° .....	$\frac{3}{8}$	$\frac{1}{2}$ and Larger	.....
Extension Pieces .....	.....	All Sizes	.....
Locknuts .....	$\frac{1}{8}$	$\frac{1}{4}$ to $1\frac{1}{4}$ , inclusive	$1\frac{1}{2}$ and Larger
Return Bends .....	$\frac{1}{4}$	$\frac{3}{8}$ to 1	$1\frac{1}{4}$ " "
"    "    R. and L. ....	$\frac{3}{8}$ and $\frac{1}{2}$	$\frac{3}{4}$ and Larger	.....
Tees .....	$\left\{ \begin{array}{l} \frac{1}{8} \times \frac{1}{8} \\ \frac{1}{8} \times \frac{1}{4} \\ \frac{1}{4} \times \frac{1}{8} \\ \frac{3}{8} \times \frac{1}{8} \end{array} \right\}$	$\left\{ \begin{array}{l} \frac{1}{4}, \frac{3}{8}, \frac{1}{2} \\ \frac{1}{4} \times \frac{1}{4} \times \frac{3}{8} \\ \frac{3}{8} \times \frac{1}{4} \times \frac{1}{4} \\ \frac{3}{8} \times \frac{3}{8} \times \frac{1}{4} \\ \frac{3}{8} \times \frac{1}{4} \times \frac{3}{8} \\ \frac{1}{2} \text{ Reducing} \end{array} \right\}$	* $\frac{3}{4}$ and Larger
Tees, Drop .....	.....	All Sizes	.....
"    Four-way .....	.....	" "	.....
"    Service .....	.....	$\left\{ \begin{array}{l} \frac{3}{8}, \frac{1}{2}, \frac{3}{4} \\ \frac{3}{4} \times \frac{1}{2} \times \frac{3}{4} \\ \frac{3}{4} \times 1, 1 \times \frac{3}{4} \times 1 \\ 1 \times 1 \times \frac{3}{4} \end{array} \right\}$	1 and Larger
Wall Plates .....	.....	All Sizes	.....
Waste Nuts .....	.....	" "	.....
"Y" Bends .....	.....	" "	.....
"    "    60° .....	.....	" "	.....
Price, Black, ..... per pound	.40	.20	.12
"    Galvanized .....	.50	.28	.19

\*Fittings in Class C having one or more outlets smaller than  $\frac{3}{4}$  inch will be charged as Class B.

Orders for malleable fittings aggregating not more than 25 pounds, assorted in Classes B and C, will be charged as Class B.

$\frac{1}{8}$ -inch street ells, caps and locknuts are sold by piece.

The run of a tee gives the size for the purpose of classification and the outlet being larger does not change it. Right and left fittings, not classified above, take one class higher than right. For small quantities of right and left fittings we will charge time.

NOTE.—We make many fittings not shown above. If you need special fittings, specifications are invited.

# MALLEABLE IRON FITTINGS

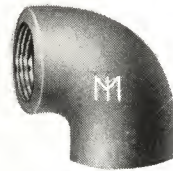
## REVISED CLASSIFICATION

Adopted June 5, 1907

BANDED FOR STEAM



PLAIN FOR GAS



Some sizes of malleable iron fittings are made in two styles banded for steam or water, and plain for gas. We will always ship banded pattern when made, unless otherwise ordered.

### ELBOWS

	Size	Class
*Gas.....	1/8	A
*Gas.....	1/4x 1/8	A
*Steam & Gas	1/4	B
*Gas.....	3/8x 1/8	A
*Steam & Gas	3/8x 1/4	B
*Steam & Gas	3/8	B
*Gas.....	1/2x 1/8	A
*Steam & Gas	1/2x 1/4	B
*Steam & Gas	1/2x 3/8	B
*Steam & Gas	1/2	B
*Gas.....	3/4x 3/8	B
*Steam & Gas	3/4x 1/2	B
*Steam & Gas	3/4	C
*Gas.....	1 x 3/8	B
*Steam & Gas	1 x 1/2	B
*Steam & Gas	1 x 3/4	C
*Steam & Gas	1	C
*Steam.....	1 1/4x 1/2	B
*Steam.....	1 1/4x 3/4	C
*Steam & Gas	1 1/4x1	C
*Steam & Gas	1 1/4	C
*Steam.....	1 1/2x 3/4	C
*Steam.....	1 1/2x1	C
*Steam & Gas	1 1/2x1 1/4	C
*Steam & Gas	1 1/2	C
*Steam.....	2 x1	C
*Steam.....	2 x1 1/4	C
*Steam & Gas	2 x1 1/2	C
*Steam & Gas	2	C
*Steam.....	2 1/2x1 1/2	C
*Steam.....	2 1/2x2	C
*Steam.....	2 1/2	C
*Steam.....	3 x2	C
*Steam.....	3 x2 1/2	C
*Steam.....	3	C
*Steam.....	3 1/2x3	C
*Steam.....	3 1/2	C
*Steam.....	4 x3	C
*Steam.....	4 x3 1/2	C
*Steam.....	4	C
*Steam.....	4 1/2	C

### ELBOWS

	Size	Class
*Steam.....	5	C
*Steam.....	6	C

**RIGHT AND LEFT  
ELBOWS**

*Steam.....	1/4x 1/4	A
*Steam.....	3/8x 3/8	A
*Steam.....	1/2x 1/2	B
*Steam.....	3/4x 3/4	B
*Steam.....	1 x1	B
*Steam.....	1 1/4x1 1/4	C
*Steam.....	1 1/2x1 1/2	C
*Steam.....	2 x2	C

### STREET ELBOWS

*Banded....	1/8	A
*Banded....	1/4	B
*Banded....	3/8	B
*Banded....	1/2	B
*Banded....	3/4x 1/2	B
*Banded....	3/4	B
*Banded....	1 x 1/2	B
*Banded....	1 x 3/4	B
*Banded....	1	C
*Banded....	1 1/4x 3/4	C
*Banded....	1 1/4x1	C
*Banded....	1 1/4	C
*Banded....	1 1/2x1 1/4	C
*Banded....	1 1/2	C
*Banded....	2 x1 1/4	C
*Banded....	2 x1 1/2	C
*Banded....	2	C
*Banded....	2 1/2	C
*Banded....	2 1/2x2	C
*Banded....	3	C
*Banded....	3 x2 1/2	C
*Banded....	4	C
*Banded....	4 x3	C

### 45° STREET ELBOWS

*Banded....	3/8	A
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### 45° STREET ELBOWS

	Size	Class
*Banded....	1/2	B
*Banded....	3/4	B
*Banded....	1	B
*Banded....	1 1/4	B
*Banded....	1 1/2	B
*Banded....	2	B
Banded....	3	B
Banded....	4	B

### SIDE OUTLET ELBOWS

Gas.....	3/8x 3/8	1/4	B
*Gas.....	3/8x 3/8	3/8	B
*Gas.....	1/2x 1/2	3/8	B
*Gas.....	1/2x 1/2	1/2	B
Gas.....	3/4x 3/4	3/8	B
*Gas.....	3/4x 3/4	1/2	B
*Gas.....	3/4x 3/4	3/4	B
Gas.....	1 x1	x 3/4	B
*Gas.....	1 x1	x1	B
Gas.....	1 1/4x1 1/4	x1	B
*Gas.....	1 1/4x1 1/4	x1 1/4	B
*Gas.....	1 1/2x1 1/2	x1 1/2	B
*Gas.....	2 x2	x2	B

### 45° ELBOWS

*Steam.....	1/4	B
*Steam.....	3/8	B
*Steam & Gas	1/2	B
*Steam & Gas	3/4	B
*Steam & Gas	1	B
*Steam & Gas	1 1/4	B
*Steam & Gas	1 1/2	B
*Steam & Gas	2	B
*Steam.....	2 1/2	C
*Steam.....	3	C
*Steam.....	3 1/2	C
Steam.....	4	C
Steam.....	4 1/2	C
*Steam.....	5	C
*Steam.....	6	C

\*Carried in stock galvanized.





**MALLEABLE IRON FITTINGS****REVISED CLASSIFICATION**

Adopted June 5, 1907

**TEES**

	Size	Class
*Steam.....	4 x4 x4	C
Steam.....	4 1/2 x 4 1/2 x 4 1/2	C
Steam.....	5 x5 x2	C
Steam.....	5 x5 x3	C
*Steam.....	5 x5 x4	C
*Steam.....	5 x5 x5	C
Steam.....	6 x6 x2	C
*Steam.....	6 x6 x2 1/2	C
Steam.....	6 x6 x3	C
*Steam.....	6 x6 x4	C
*Steam.....	6 x6 x6	C

**FOUR-WAY TEES**

*Gas.....	3/8	B
*Gas.....	1/2	B
*Gas.....	3/4	B
*Gas.....	1	B
*Gas.....	1 1/4	B
*Gas.....	1 1/2	B
*Gas.....	2	B

**SERVICE TEES**

*Banded....	3/8x 3/8x 3/8	B
*Banded....	1/2x 1/2x 1/2	B
*Banded....	3/4x 3/4x 3/4	B
Banded....	3/4x 1/2x 3/4	B
Banded....	3/4x 3/4x 1	B
*Banded....	1 x 3/4x 1	B
Banded....	1 x1 x 3/4	B
*Banded....	1 x1 x1	C
Banded....	1 x1 x1 1/4	C
*Banded....	1 1/4x 3/4x1 1/4	C
*Banded....	1 1/4x1 x1 1/4	C
*Banded....	1 1/4x1 1/4x1 1/4	C
Banded....	1 1/4x1 x1	C
*Banded....	1 1/2x 3/4x1 1/2	C
*Banded....	1 1/2x1 x1 1/2	C
*Banded....	1 1/2x1 1/4x1 1/2	C
*Banded....	1 1/2x1 1/2x1 1/2	C
*Banded....	2 x1 1/2x2	C
*Banded....	2 x2 x2	C
Banded....	2 1/2x2 x2 1/2	C
Banded....	2 1/2x2 1/2x2 1/2	C
Banded....	3 x2 1/2x3	C
Banded....	3 x3 x3	C
Banded....	3 x3 x4	C

**CROSSES**

Both outlets same size and denoted by last figure.

*Gas.....	1/4x 1/4x 1/4	B
Gas.....	3/8x 3/8x 1/4	B
*Steam & Gas	3/8x 3/8x 3/8	B
*Gas.....	1/2x 3/8x 3/8	B
*Gas.....	1/2x 1/2x 1/4	B

**CROSSES**

	Size	Class
*Gas.....	1/2x 1/2x 3/8	B
*Steam & Gas	1/2x 1/2x 1/2	B
Gas.....	3/4x 3/8x 1/2	B
*Gas.....	3/4x 1/2x 3/8	B
*Gas.....	3/4x 1/2x 1/2	B
*Gas.....	3/4x 3/4x 3/8	B
*Gas.....	3/4x 3/4x 1/2	B
*Steam & Gas	3/4x 3/4x 3/4	B
Gas.....	1 x 1/2x 3/8	B
Gas.....	1 x 3/4x 3/8	B
Gas.....	1 x 3/4x 1/2	B
*Gas.....	1 x 3/4x 3/4	B
*Steam & Gas	1 x1 x 3/8	B
*Steam & Gas	1 x1 x 1/2	B
*Steam & Gas	1 x1 x 3/4	B
*Steam & Gas	1 x1 x1	B
*Steam.....	1 1/4x1 x 3/4	C
*Steam.....	1 1/4x1 x1	C
*Steam.....	1 1/4x1 1/4x 3/8	C
*Steam.....	1 1/4x1 1/4x 1/2	B
*Steam.....	1 1/4x1 1/4x 3/4	C
*Steam.....	1 1/4x1 1/4x1 1/4	C
*Steam & Gas	1 1/4x1 1/4x1 1/4	C
*Steam.....	1 1/2x1 1/2x 1/2	B
*Steam.....	1 1/2x1 1/2x 3/4	C
*Steam.....	1 1/2x1 1/2x1	C
*Steam.....	1 1/2x1 1/2x1 1/4	C
*Steam & Gas	1 1/2x1 1/2x1 1/2	C
*Steam.....	2 x2 x 1/2	B
*Steam.....	2 x2 x 3/4	C
*Steam.....	2 x2 x1	C
*Steam.....	2 x2 x1 1/4	C
*Steam & Gas	2 x2 x1 1/2	C
*Steam & Gas	2 x2 x2	C
*Steam.....	2 1/2x2 1/2x2	C
*Steam.....	2 1/2x2 1/2x2 1/2	C
*Steam.....	3 x3 x2	C
Steam.....	3 x3 x2 1/2	C
*Steam.....	3 x3 x3	C
Steam.....	3 1/2x3 1/2x3 1/2	C
*Steam.....	4 x4 x2	C
*Steam.....	4 x4 x3	C
*Steam.....	4 x4 x4	C
Steam.....	5 x5 x5	C
Steam.....	6 x6 x6	C

**DROP ELBOWS, FEMALE**

*Gas.....	1/4x 1/4	B
Gas.....	3/8x 1/4	B
*Gas.....	3/8x 3/8	B
*Gas.....	1/2x 1/2	B
*Gas.....	3/4x 1/2	B
*Gas.....	3/4x 3/4	B

**DROP ELBOWS****MALE AND FEMALE**

	Size	Class
*Gas.....	1/4x 3/8	B
*Gas.....	3/8x 3/8	B
*Gas.....	1/2x 3/8	B
*Gas.....	1/2x 1/2	B

**LONG DROP ELBOWS**

*Gas.....	1/4x 3/8	B
*Gas.....	3/8x 3/8	B
*Gas.....	1/2x 3/8	B
*Gas.....	1/2x 1/2	B

**DROP TEES, FEMALE**

Gas.....	3/8x 3/8x 1/4	B
*Gas.....	3/8x 3/8x 3/8	B
Gas.....	1/2x 3/8x 3/8	B
*Gas.....	1/2x 1/2x 3/8	B
*Gas.....	1/2x 1/2x 1/2	B
Gas.....	3/4x 1/2x 3/8	B
*Gas.....	3/4x 3/4x 1/4	B
*Gas.....	3/4x 3/4x 3/8	B
*Gas.....	3/4x 3/4x 1/2	B
*Gas.....	3/4x 3/4x 3/4	B
Gas.....	1 x1 x 3/8	B

**DROP TEES****MALE AND FEMALE**

Gas.....	1/4x 1/4x 3/8	B
Gas.....	3/8x 1/4x 3/8	B
*Gas.....	3/8x 3/8x 3/8	B
Gas.....	1/2x 3/8x 3/8	B
*Gas.....	1/2x 1/2x 3/8	B
Gas.....	3/4x 1/2x 3/8	B
*Gas.....	3/4x 3/4x 3/8	B
Gas.....	1 x1 x 3/8	B

**LONG DROP TEES**

*Gas.....	3/8x 3/8x 3/8	B
Gas.....	3/4x 3/4x 1/2	B
Gas.....	1 x1 x 1/2	B
Gas.....	1 1/4x1 1/4x 1/2	B

**OFFSETS**

All sizes, 3/4, 1, and 1 1/4-inch B

**EXTENSION PIECES MALE AND FEMALE**

*.....	3/8x 3/8	B
*.....	1/2x 1/2	B
*.....	3/4x 3/4	B

**CAPS**

*Gas.....	1/4	B
*Gas.....	3/8	B
*Gas.....	1/2	B

\*Carried in stock galvanized.



**MALLEABLE IRON FITTINGS****REVISED CLASSIFICATION**

Adopted June 5, 1907

**CAPS**

	Size	Class
*Gas.....	$\frac{3}{4}$	B
*Gas.....	1	B
*Steam.....	$1\frac{1}{4}$	C
*Steam.....	$1\frac{1}{2}$	C
*Steam.....	2	C
*Steam.....	$2\frac{1}{2}$	C
*Steam.....	3	C
*Steam.....	$3\frac{1}{2}$	C
*Steam.....	4	C
*Steam.....	5	C
*Steam.....	6	C

**REDUCERS**

*Gas.....	$1\frac{1}{4} \times \frac{1}{8}$	A
*Gas.....	$\frac{3}{4} \times \frac{1}{8}$	A
*Gas.....	$\frac{3}{8} \times \frac{1}{4}$	B
*Gas.....	$1\frac{1}{2} \times \frac{1}{8}$	A
*Gas.....	$1\frac{1}{4} \times \frac{1}{4}$	B
*Gas.....	$1\frac{1}{2} \times \frac{3}{8}$	B
*Gas.....	$\frac{3}{4} \times \frac{1}{4}$	B
*Gas.....	$\frac{3}{4} \times \frac{3}{8}$	B
*Steam & Gas	$\frac{3}{4} \times \frac{1}{2}$	B
*Gas.....	1 x $\frac{1}{4}$	B
*Gas.....	1 x $\frac{3}{8}$	B
*Gas.....	1 x $\frac{1}{2}$	B
*Steam & Gas	1 x $\frac{3}{4}$	B
*Steam.....	$1\frac{1}{4} \times \frac{3}{8}$	B
*Steam.....	$1\frac{1}{4} \times \frac{1}{2}$	B
*Steam.....	$1\frac{1}{4} \times \frac{3}{4}$	C
*Steam & Gas	$1\frac{1}{4} \times 1$	C
*Steam.....	$1\frac{1}{2} \times \frac{1}{2}$	B
*Steam.....	$1\frac{1}{2} \times \frac{3}{4}$	C
*Steam.....	$1\frac{1}{2} \times 1$	C
*Steam & Gas	$1\frac{1}{2} \times 1\frac{1}{4}$	C
*Steam.....	2 x $\frac{1}{2}$	B
*Steam.....	2 x $\frac{3}{4}$	C
*Steam.....	2 x 1	C
*Steam.....	2 x $1\frac{1}{4}$	C
*Steam.....	2 x $1\frac{1}{2}$	C
*Steam.....	$2\frac{1}{2} \times 1$	C
*Steam.....	$2\frac{1}{2} \times 1\frac{1}{4}$	C
*Steam.....	$2\frac{1}{2} \times 1\frac{1}{2}$	C
*Steam.....	$2\frac{1}{2} \times 2$	C
*Steam.....	3 x 1	C
*Steam.....	3 x $1\frac{1}{4}$	C
*Steam.....	3 x $1\frac{1}{2}$	C
*Steam.....	3 x 2	C
*Steam.....	3 x $2\frac{1}{2}$	C
*Steam.....	$3\frac{1}{2} \times 2$	C
*Steam.....	$3\frac{1}{2} \times 2\frac{1}{2}$	C
*Steam.....	$3\frac{1}{2} \times 3$	C
*Steam.....	4 x 1	C
*Steam.....	4 x $1\frac{1}{4}$	C
*Steam.....	4 x $1\frac{1}{2}$	C

**REDUCERS**

	Size	Class
*Steam.....	4 x 2	C
*Steam.....	4 x $2\frac{1}{2}$	C
*Steam.....	4 x 3	C
*Steam.....	4 x $3\frac{1}{2}$	C

**RETURN BENDS  
CLOSE PATTERN**

Size	Dist. Btw. Center	R. H.	CLASS
$\frac{1}{2}$	1	*B	*A
$\frac{3}{4}$	$1\frac{1}{4}$	*B	*B
1	$1\frac{1}{2}$	*B	*B
$1\frac{1}{4}$	$1\frac{3}{4}$	*C	*B
$1\frac{1}{2}$	$2\frac{3}{8}$	*C	*B
2	$2\frac{5}{8}$	*C	*B

**RETURN BENDS  
OPEN PATTERN**

Size	Dist. Btw. Center	R. H.	CLASS
$\frac{1}{2}$	$1\frac{1}{2}$	*B	A
$\frac{3}{4}$	2	*B	*B
1	$2\frac{1}{2}$	*B	*B
$1\frac{1}{4}$	3	*C	*B
$1\frac{1}{2}$	$3\frac{1}{2}$	*C	*B
2	4	*C	*B
$2\frac{1}{2}$	$4\frac{1}{2}$	*C	B
3	5	*C	B

**Y BENDS**

	Size	Class
*Steam.....	$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$	B
*Steam.....	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$	B
*Steam.....	1 x 1 x 1	B
*Steam & Gas	$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	B
*Steam.....	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	B
*Steam & Gas	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	B
*Steam & Gas	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	B
*Steam & Gas	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	B
*Steam & Gas	$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	B
*Steam.....	2 x $1\frac{1}{4} \times 1\frac{1}{4}$	B
*Steam & Gas	2 x $1\frac{1}{4} \times 1\frac{1}{2}$	B
*Steam & Gas	2 x $1\frac{1}{4} \times 2$	B
*Steam & Gas	2 x $1\frac{1}{2} \times 1\frac{1}{4}$	B
*Steam & Gas	2 x $1\frac{1}{2} \times 1\frac{1}{2}$	B
*Steam & Gas	2 x $1\frac{1}{2} \times 2$	B
*Steam & Gas	2 x 2 x $1\frac{1}{4}$	B
*Steam & Gas	2 x 2 x $1\frac{1}{2}$	B
*Steam.....	$2\frac{1}{2} \times 2\frac{1}{2} \times 2$	B
*Steam & Gas	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	B
*Steam.....	3 x 3 x $2\frac{1}{2}$	B
*Steam.....	3 x 3 x 3	B
*Steam.....	4 x 4 x 4	B

**60° Y BENDS**

*Gas.....	2 x 2 x 2	B
*Gas.....	2 x 2 x $1\frac{1}{2}$	B

**COUPLINGS  
RIGHT AND LEFT**

	Size	Class
*.....	$\frac{1}{4}$	B
*.....	$\frac{3}{8}$	B
*.....	$\frac{1}{2}$	B
*.....	$\frac{3}{4}$	B
*.....	1	C
*.....	$1\frac{1}{4}$	C
*.....	$1\frac{1}{2}$	C
*.....	2	C
*.....	$2\frac{1}{2}$	C
*.....	3	C

**COUPLINGS  
RIGHT-HAND**

*Steam & Gas	$\frac{1}{4}$	B
*Steam & Gas	$\frac{3}{8}$	B
*Steam & Gas	$\frac{1}{2}$	B
*Steam & Gas	$\frac{3}{4}$	B
*Steam & Gas	1	C
*Steam & Gas	$1\frac{1}{4}$	C
*Steam & Gas	$1\frac{1}{2}$	C
*Steam & Gas	2	C
*Steam.....	$2\frac{1}{2}$	C
*Steam.....	3	C

**LOCKNUTS**

*.....	$\frac{1}{4}$	B
*.....	$\frac{3}{8}$	B
*.....	$\frac{1}{2}$	B
*.....	$\frac{3}{4}$	B
*.....	1	B
*.....	$1\frac{1}{4}$	B
*.....	$1\frac{1}{2}$	C
*.....	2	C

**WASTE NUTS, PLAIN**

*.....	$\frac{1}{4}$	B
*.....	$\frac{3}{8}$	B
*.....	$\frac{1}{2}$	B
*.....	$\frac{3}{4}$	B
*.....	1	B
*.....	$1\frac{1}{4}$	B
*.....	$1\frac{1}{2}$	B

**CHANDELIER LOOPS  
MALE**

.....	$\frac{3}{8}$	B
.....	$\frac{1}{2}$	B

**CHANDELIER HOOKS  
MALE OR FEMALE**

.....	$\frac{3}{8}$	B
.....	$\frac{1}{2}$	B

**WALL PLATES**

.....	$\frac{3}{8}$	B
.....	$\frac{1}{2}$	B
.....	$\frac{3}{4}$	B

\*Carried in stock galvanized.



# MALLEABLE IRON FITTINGS

## ELBOWS

STRAIGHT



Fig. 9354A

45°



Fig. 9354B

60°



Fig. 9354C

## STRAIGHT AND REDUCING

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price, R. H., Black.....	each	.06	.07	.08	.10	.15	.22	.25	.35
" R. and L., Black.....	"	.09	.11	.13	.17	.25	.30	.40	.60
" R. H., Galvanized.....	"	.08	.09	.11	.14	.20	.32	.40	.65
" R. and L., Galvanized.....	"	.12	.16	.17	.23	.35	.45	.65	1.00
Size .....	inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Price, R. H., Black.....	each	.50	.90	1.50	2.25	3.00	3.50	4.00	6.50
" R. and L., Black.....	"	.65	1.50	2.60	3.75	5.00	6.50	10.00	1.00
" R. H., Galvanized.....	"	.90	1.50	2.60	3.75	5.00	6.50	10.00	1.00
" R. and L., Galvanized.....	"	1.00	1.50	2.60	3.75	5.00	6.50	10.00	1.00

45°

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Black .....	each	.08	.10	.12	.18	.26	.36	.54	.82
" Galvanized .....	"	.12	.15	.20	.25	.40	.50	.85	1.35
Size .....	inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	....
Price, Black .....	each	1.25	2.50	3.25	4.50	5.25	6.00	7.50	....
" Galvanized .....	"	1.90	3.75	4.75	6.75	....	9.00	11.00	....

60°

Size .....	inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Black .....	each	.30	.45	.65
" Galvanized .....	"	.45	.70	1.05

## STREET



Fig. 9354D



Fig. 9354E

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Price, Black .....	each	.08	.10	.10	.12	.20	.25	.40	.55	.90	1.50	2.25	3.50
" Galvanized .....	"	.10	.12	.12	.15	.28	.35	.55	.80	1.30	2.25	3.50	....
" 45°, Black .....	"	....	....	.12	.12	.20	.25	.40	.55	.90	....	2.25	3.50
" 45°, Galvanized .....	"	....	....	.15	.15	.28	.35	.55	.80	1.30	....	....	....

# MALLEABLE IRON FITTINGS

SIDE OUTLET



Fig. 1559A

ELBOWS

FEMALE DROP



Fig. 1559B

MALE AND FEMALE DROP

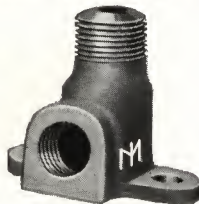


Fig. 1559C

## SIDE OUTLET ELBOWS

Size.....inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Black.....each	.08	.10	.18	.30	.45	.60	1.00
“ Galvanized.....“	.10	.15	.25	.45	.65	.90	1.50

## DROP ELBOWS

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, Female, Black.....each	.06	.08	.12	.20
“ “ Galvanized.....“	.09	.12	.20	.35
“ Male and Female, Black.....“	....	.08	.12	....
“ “ “ Galvanized.....“	....	.12	.20	....

FEMALE  
DROP TEEMALE AND FEMALE  
DROP TEE

LONG DROP TEE

LONG DROP ELBOW



Fig. 1559D



Fig. 1559E

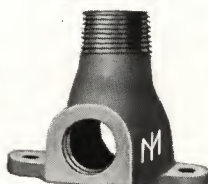


Fig. 1559F

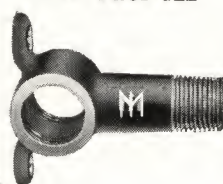


Fig. 1559G

## LONG DROP ELBOWS

Size.....inches	$\frac{1}{4} \times \frac{3}{8}$	$\frac{3}{8} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{1}{2}$
Drop Length Over All.....inches	$2\frac{3}{8}$	$2\frac{1}{2}$	$3\frac{1}{8}$	$3\frac{1}{8}$
Price, Black.....each	.10	.10	.18	.18
“ Galvanized.....“	.18	.18	.27	.27

## DROP TEES

Size.....inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, Female, Black.....each	.10	.14	.22	.30
“ “ Galvanized.....“	.15	.25	.40	....
“ Male and Female, Black.....“	.10	.14	.22	.30
“ “ “ Galvanized.....“	.15	.25	.40	....

## LONG DROP TEES

Size.....inches	$\frac{3}{8}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{1}{2}$	$1 \times 1\frac{1}{2}$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{2}$
Drop Length Over All.....inches	$2\frac{1}{2}$	$3\frac{1}{8}$	$3\frac{3}{8}$	$3\frac{3}{4}$
Price, Black.....each	.12	.30	.40	.60
“ Galvanized.....“	.17	....	....	....

## MALLEABLE IRON FITTINGS

### TEES—STRAIGHT AND REDUCING



Fig. 1913A

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Price, Black.....each	.07	.08	.09	.11	.15	.25	.30	.45	.60	1.05	1.70	2.50	3.40	4.25	5.00	7.75
“ Galvanized.. “	.09	.10	.13	.16	.20	.38	.50	.70	1.00	1.90	3.00	4.25	5.75	....	8.00	12.00

Parties desiring R. and L. tees, will state, when ordering, which hole is to be tapped left-hand. Such goods can always be furnished to order.

#### SERVICE TEE

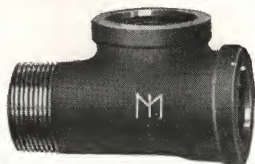


Fig. 1913B

#### FOUR-WAY TEE



Fig. 1913C

#### SERVICE TEES

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3x2 1/2x3	3x3x4
Price, Black.....each	.12	.15	.25	.35	.50	.75	1.15	2.00	2.50	2.50	4.00
“ Galvanized..... “	.15	.20	.35	.50	.70	1.10	1.65	....	....	....	....

#### FOUR-WAY TEES

Size.....inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Black.....each	.12	.14	.20	.35	.50	.70	1.10
“ Galvanized..... “	.17	.20	.28	.50	.70	1.10	1.75

### “Y” BENDS—STRAIGHT AND REDUCING



Fig. 1913D

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Price, Black.....each	.40	.50	.60	.80	1.00	1.70	2.00	4.00	5.50
“ Galvanized..... “	.60	.75	.90	1.25	1.50	2.50	3.00	6.00	8.25

#### 60° “Y” BENDS

Size.....inches	2x2	2x1 1/2
Price, Black.....each	1.70	1.70
“ Galvanized..... “	2.50	2.50



## MALLEABLE IRON FITTINGS



Fig. 2312A

### STRAIGHT AND REDUCING CROSSES

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Price, Black .....	each	.09	.10	.16	.20	.30	.40	.60
" Galvanized .....	"	.12	.14	.25	.29	.45	.60	.90

Size .....	inches	2	2 1/2	3	3 1/2	4	5	6
Price, Black .....	each	1.00	1.75	3.00	3.25	5.25	7.50	13.00
" Galvanized .....	"	1.50	2.75	4.50	....	8.00	....	....

### COUPLINGS

#### RIGHT AND LEFT

#### RIGHT-HAND



Fig. 2312B



Fig. 2312C

#### OFFSET



Fig. 2312D

### RIGHT-HAND

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black .....	each	.03	.05	.07	.10	.14	.20	.25	.35	.60	.90
" Galvanized .....	"	.05	.07	.10	.17	.23	.30	.40	.55	.95	1.40

### RIBBED RIGHT AND LEFT

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black .....	each	.04	.06	.08	.12	.16	.25	.36	.52	.70	1.00
" Galvanized .....	"	.06	.09	.10	.17	.25	.35	.55	.75	1.05	1.50

### OFFSET REDUCING COUPLINGS

This fitting is the same as a male and female reducer, except that the inlet and outlet are on the same level. By its use water pockets are prevented.

Size .....	inches	1x3/4	1 1/4x1	1 1/2x1 1/4	2x1 1/2	2 1/2x2	3x2 1/2
Price .....	each	.60	.70	.90	1.10	1.80	2.50

Size .....	inches	3 1/2x3	4x3	4x3 1/2	4 1/2x4	5x4	5x4 1/2
Price .....	each	3.00	4.00	4.00	5.00	6.00	6.00

### MALLEABLE IRON CROSS OVERS

Size .....	inches	1/2	3/4	1
Price, Black .....	each	.20	.30	.45
" Galvanized .....	"	.25	.40	.60



Fig. 2312E

## MALLEABLE IRON FITTINGS

### RETURN BENDS

CLOSE PATTERN



Fig. 6001A

OPEN PATTERN



Fig. 6001B

### CLOSE PATTERN

Close pattern return bends will not make up parallel coils, as the distance, center to center of two adjacent bends, is greater than the center to center of openings of a single bend.

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Center to Center .....	inches	....	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{3}{16}$	$2\frac{3}{8}$
Price, R. H., Black .....	each	.16	.18	.25	.35	.50	.75	1.00
" " Galvanized .....	"	.23	.25	.35	.55	.75	1.15	1.65
" R. and L., Black .....	"	....	.23	.30	.45	.60	.90	1.25
" L. H., Black .....	"	....	.23	.30	.45	.60	.90	1.25

### OPEN PATTERN

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Center to Center .....	inches	$1\frac{3}{8}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Price, R. H., Black .....	each	.18	.20	.30	.50	.65	.85	1.25	2.00	3.00
" " Galvanized .....	"	.25	.28	.45	.70	.90	1.25	2.00	3.50	5.00
" R. and L., Black .....	"	....	.25	.38	.60	.80	1.05	1.55	2.50	3.75
" L. H., Black .....	"	....	.25	.38	.60	.80	1.05	1.55	2.50	3.75

### SPECIAL WIDE PATTERN—RIGHT-HAND



Fig. 6001C

Size .....	inches	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Center to Center .....	inches	$1\frac{5}{8}$	4	6	4	6	6	6
Price, Black .....	each	.25	1.00	1.25	1.25	1.25	1.25	2.00
" Galvanized .....	"	.30	1.35	1.65	1.70	1.70	1.70	2.75
Size .....	inches	2	2	3	3	4	6	....
Center to Center .....	inches	5	6	$7\frac{1}{2}$	8	6	12	....
Price, Black .....	each	3.00	4.00	5.00	5.00	8.00	16.00	....
" Galvanized .....	"	4.00	5.00	6.50	6.50	10.00	20.00	....

## MALLEABLE IRON FITTINGS

REDUCER



Fig. 3591A

CAP



Fig. 3591B

OFFSET



Fig. 3591C

### REDUCERS

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Black.....each	.05	.06	.07	.10	.16	.20
" Galvanized....."	.08	.10	.10	.15	.25	.35
Size.....inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Black.....each	.28	.45	.70	1.00	1.50	1.85
" Galvanized....."	.45	.75	1.05	1.65	2.40	3.05

### CAPS

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price, Black.....each	.03	.04	.05	.08	.12	.16	.24
" Galvanized....."	.04	.05	.08	.12	.17	.24	.38
Size.....inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price, Black.....each	.32	.45	.85	1.00	1.20	2.50	3.50
" Galvanized....."	.52	.76	1.30	1.60	2.00	3.50	5.00

We can furnish hexagon malleable caps, sizes  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch at special price.

### OFFSETS

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$
Offset.....inches	$1\frac{1}{2}$	$1\frac{1}{2}$	2
Length....."	$3\frac{1}{4}$	4	$5\frac{3}{8}$
Price.....each	.25	.40	.75

### WASH TRAY TEES

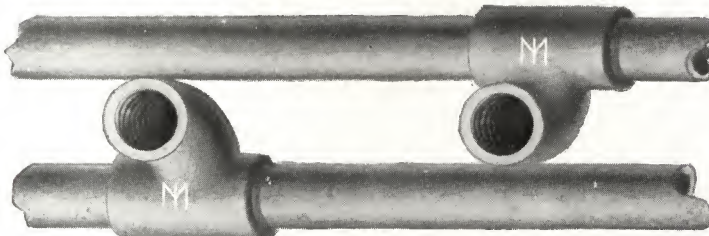


Fig. 3591D

Size.....inches	$\frac{1}{2}$	$\frac{3}{4}$
Price, Malleable Iron, Galvanized.....each	.20	.30
" Rough Brass....."	.40	.60



## MALLEABLE FITTINGS



Fig. 6023A



Fig. 6023B



Fig. 6023C



Fig. 6023D

### LOCKNUTS

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Black.....	each	.02	.03	.04	.05	.07	.09	.11	.18
" Galvanized .....	"	.03	.04	.05	.07	.10	.14	.20	.30

### BUSHINGS—REDUCING ONE SIZE ONLY

Size.....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, Black .....	each	.04	.04	.04	.05	.06	.07	.09	.14	.21
" Galvanized.....	"	.08	.08	.08	.10	.12	.14	.18	.28	.42

### FACED BUSHINGS

Size.....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Price, Black....	each	.08	.09	.11	.13	.17	.22	.32	.48	.70	1.20	1.50	2.10	2.60	3.75
" Galvanized "	"	.20	.25	.33	.48	.72	1.05	1.80	2.25	.....	.....	.....	.....	.....	.....

### WASTE NUTS

Size.....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price, Black .....	each	.04	.05	.06	.08	.10	.15	.25
" Galvanized .....	"	.08	.10	.12	.16	.20	.30	.50

### CHANDELIER HOOKS OR LOOPS



Fig. 6023E

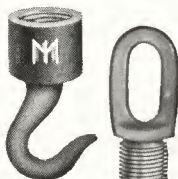


Fig. 6023F



Fig. 6023G

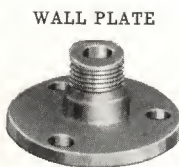


Fig. 6023H

### LONG SCREW COUPLINGS AND FOLLOWERS

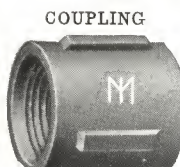


Fig. 6023J



Fig. 6023K

### EXTENSION PIECES, CHANDELIER HOOKS AND WALL PLATES

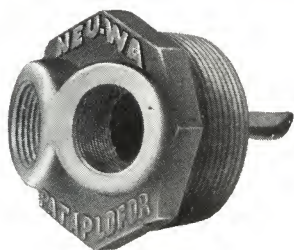
Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, Extension Pieces .....	each	.06	.09	.12
" " Galvanized .....	"	.09	.13	.18
" Chandelier Hooks or Loops .....	"	.10	.12	.....
" Wall Plates .....	"	.12	.16	.30

Can furnish male hooks when so specified.

### LONG SCREW COUPLINGS AND FOLLOWERS

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Couplings, Black.....	each	.09	.09	.10	.11	.14	.21	.26	.34
" " Galvanized.....	"	.11	.11	.13	.16	.21	.32	.37	.50
" Followers, Black.....	"	.06	.06	.06	.07	.10	.14	.17	.23
" " Galvanized.....	"	.07	.07	.08	.11	.14	.21	.25	.33

## RADIATOR BUSHINGS, ETC.



**Fig. 10286A**

## RADIATOR BUSHINGS

The Neu-Wa Radiator Bushing contains all the desirable features of the one end radiator connection. It is easy to install, can be connected to any size radiator, does away with all piping to opposite ends, and provides a positive circulation of the hot water, the valves and piping being at only one end of radiator. This improves its appearance, simplifies location, and often allows a radiator of larger size to be set in a given space.

Flow and Return Tappings.....inches	1½	¾	1
Price .....each	.60	.60	.80

## HYDRANT CLAMP

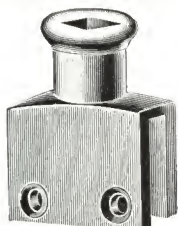


Fig. 10286B

HYDRANT  
SOCKET

Fig. 10286C

ROD  
REST



Fig. 10286D

## STREET WASHER GUIDE AND CHECK

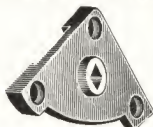


Fig. 10286E

### STREET WASHER KEY

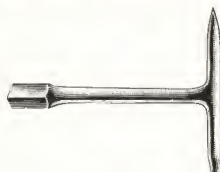


Fig. 10286F

Price, Hydrant Clamps, Malleable Iron, for Square Rod .....	per pound	.15
" " " " " " $\frac{3}{8}$ -inch Iron Pipe .....	"	.18
" " " " " " $\frac{1}{2}$ " " " " " " .....	"	.20
" " " Brass, for $\frac{1}{2}$ and $\frac{5}{8}$ -inch Square Rod .....	per dozen	2.50
" " " " " " $\frac{3}{4}$ " " " " " " .....	"	3.50
" " Sockets, Malleable Iron .....	per pound	.15
" " " Brass .....	per dozen	2.00
" Rod Rests, Cast Iron .....	"	.96
" Street Washer Guides and Checks, Iron .....	per pound	.15
" " " Keys, Malleable Iron .....	"	.15

## HYDRANT HANDLES

### LOAFER CUSHION



Fig. 10286G

## No. 1



Fig. 10286H

## No. 2



**Fig. 10286J**

Price, Loafer Cushions, 1, 1¼, 1½ and 2-inch, per Length of 23 inches .....	each	.35
“ No. 1 Hydrant Handles .....	per pound	.20
“ “ 2 “ “ .....	“	.15

## NOKOROS UNIONS

(Patented)

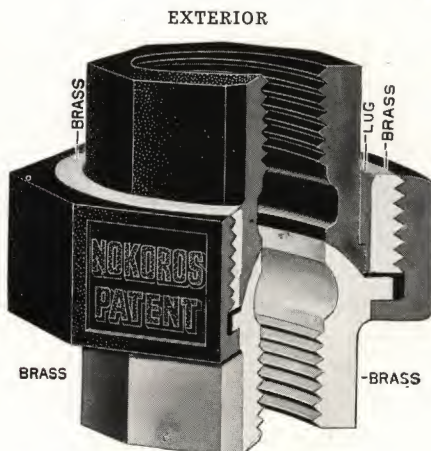


Fig. 6519A

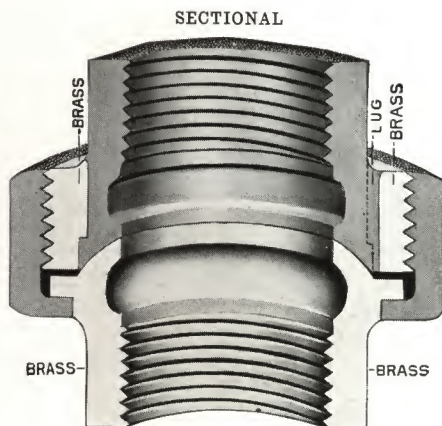


Fig. 6519B

The Nokoros Union is the only union made absolutely non-corrosive brass to iron at all contact points.

The advantage is that if there is any reason to disconnect the joint at any future time, same can be readily done as the brass to iron joint will not rust together as an "iron to iron" joint will do.

Further, a brass to iron thread connection at the ring—a thread connection of two different metals will not rust together and the joint can be disconnected and reconnected as often as may be necessary.

These unions are made with octagon ends so an ordinary monkey wrench will tighten the sections.

All Nokoros Unions are subjected to the severest test yet devised; namely, compressed air under water—the union is connected with a high pressure air line, placed under water and if any leaks are present the tiny air bubbles tell the story.

The Nokoros Unions are made of Imico refined air furnace malleable iron and the best grade of steam metal and they have earned the good opinion of those who have used them.

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, Black.....each	.18	.19	.22	.27	.40	.48
" Galvanized....."	.22	.23	.26	.34	.49	.60
Size.....inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	....
Price, Black.....each	.66	.80	1.14	2.10	2.65	....
" Galvanized....."	.82	1.10	1.40	2.75	3.50	....



## IMICO UNIONS

(Patented)

EXTERIOR

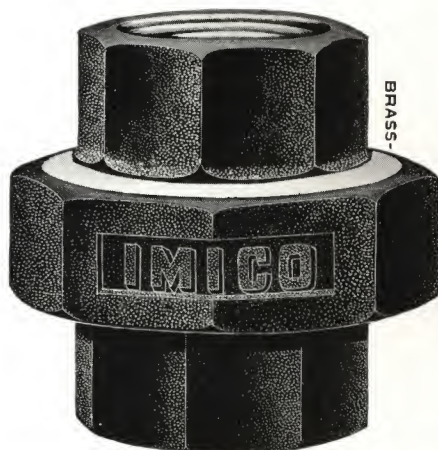


Fig. 6598A

SECTIONAL

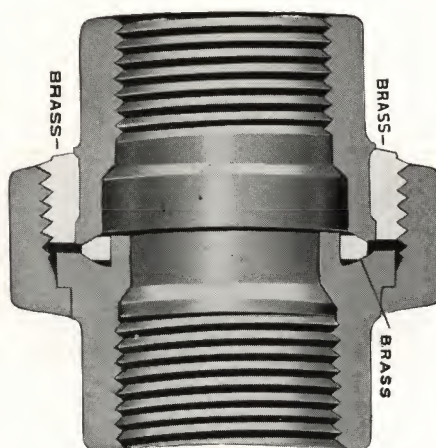


Fig. 6598B

Imico Combination Iron and Brass Unions are made of Imico refined air furnace malleable iron and have a bronze disc seat in combination with a brass to iron rustproof ring connection.

The face of each threaded section is beveled to receive a bronze disc—and turning or screwing the nut or ring brings the two sections together, compressing the bronze disc against the recesses. In this way a perfect joint is made—tight against oil, steam, air, gas or any fluid.

You will note the brass ring on the male tailpiece; this ring being firmly forced on the iron by powerful pressure in such a way as to make it permanently fast—this makes a brass to iron ring connection, enabling the user to disconnect and reconnect the union as often as may be desired.

The Imico Union is non-corrosive on seat and ring and is the best two-contact point, non-corrosive union made.

Imico Unions are tested by compressed air under water; the union is connected with a high pressure air line placed under water and if a leak exists an air bubble tells the story. This is conceded a high test.

Imico Unions are made with octagon ends—a monkey wrench will turn.

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, Black.....each	.30	.40	.50	.60	.80
“ Galvanized.....“	.45	.60	.75	.90	1.20
Size.....inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Black.....each	1.20	1.60	2.00	3.20	4.80
“ Galvanized.....“	1.80	2.40	3.00	4.80	6.20

## C. D. RAILROAD UNIONS

(Patented)

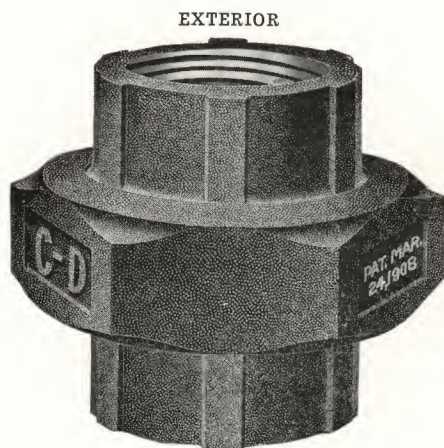


Fig. 6813A

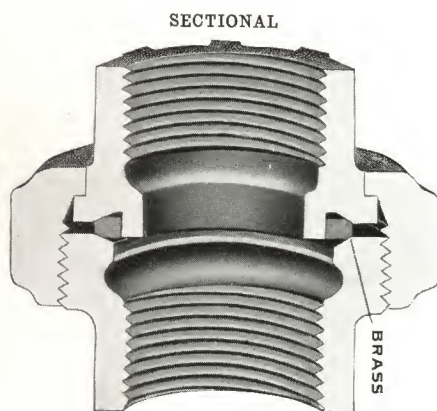


Fig. 6813B

The C. D. Railroad Unions are made of Imico refined air furnace malleable iron and have a bronze disc seat.

The cost of a gasket is saved and a real valve seat joint is made—as you will note by referring to the sectional view. You will observe that the face of each threaded section is beveled to receive a bronze disc—the act of connecting or turning the nut or ring brings the two sections together, compressing the bronze disc against the recesses. This makes a perfectly tight joint for steam, gas, oil, water or other fluids.

The joint being iron against brass, is non-corrosive and the union can be disconnected and used again.

The C. D. Railroad Unions have long threaded ends and are extra heavy. Each union is tested by air under water and will be found tight.

We recommend them as moderate priced combination brass and iron unions.

Size.....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, Black.....	each	.30	.40	.50	.60	.80
" Galvanized.....	"	.45	.60	.75	.90	1.20
Size.....	inches	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Price, Black.....	each	1.20	1.60	2.00	3.20	4.80
" Galvanized.....	"	1.80	2.40	3.00	4.80	6.20

# STANDARD SCREWED AND FLANGE UNIONS

## MALLEABLE IRON UNIONS

For Steam Working Pressures up to 150 Pounds

GASKET EXTRA

MALE AND FEMALE

STANDARD  
FEMALE

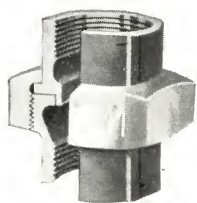


Fig. 6029A

TWO-THIRD



Fig. 6029B

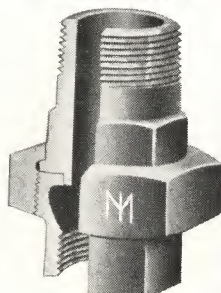


Fig. 6029C

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Female, Black .....	each	.18	.18	.20	.22	.27	.33	.46
“ “ Galvanized .....	“	.27	.27	.30	.33	.40	.50	.70
“ Two-Third, Black .....	“	....	.12	.14	.16	.19	.22	.30
“ “ Galvanized .....	“	....	.18	.20	.22	.25	.35	.50
“ Male and Female, Black .....	“	....	.23	.25	.28	.33	.40	.57
“ “ “ Galvanized .....	“	....	.32	.35	.39	.46	.57	.81

Size .....	inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	....
Price, Female, Black .....	each	.58	.75	1.55	2.10	3.65	4.35	....
“ “ Galvanized .....	“	.90	1.15	2.35	3.15	5.50	6.50	....
“ Two-Third, Black .....	“	.40	.50	1.00	1.40	2.40	3.00	....
“ “ Galvanized .....	“	.60	.75	1.60	2.10	3.70	4.35	....
“ Male and Female, Black .....	“	.72	.95	1.95	....	....	....	....
“ “ “ Galvanized .....	“	1.04	1.35	2.75	....	....	....	....

## MALLEABLE IRON FLANGE UNIONS

For Steam Working Pressures up to 125 Pounds

FACED—GASKET EXTRA



Fig. 6029D

Size .....	inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Diameter of Flanges .....	inches	$2\frac{7}{8}$	$3\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{5}{8}$	$5\frac{1}{2}$	6	$6\frac{3}{4}$
Number of Bolts in Each .....		3	4	4	4	4	6	4
Price, Black .....	each	1.40	1.60	2.00	2.50	3.00	3.50	4.40
“ Galvanized .....	“	2.80	3.20	4.00	5.00	6.00	7.00	8.80
Size .....	inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	8	....
Diameter of Flanges .....	inches	$7\frac{1}{2}$	8	$8\frac{5}{8}$	$9\frac{3}{8}$	$10\frac{5}{8}$	$13\frac{1}{8}$	....
Number of Bolts in Each .....		4	5	5	5	6	7	....
Price, Black .....	each	5.25	6.00	7.00	8.00	9.00	18.00	....
“ Galvanized .....	“	10.50	12.00	14.00	16.00	18.00	36.00	....



## UNION ELBOWS AND TEES

## MALLEABLE IRON

## UNION ELBOWS

WITH FEMALE UNION

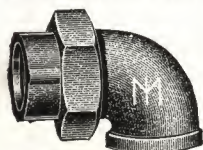


Fig. 6083A

WITH MALE UNION

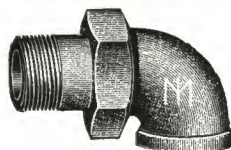


Fig. 6083B

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, with Female Union .....	each	.38	.40	.42	.54	.63
" " " " Galvanized .....	"	.57	.60	.63	.81	.95
" " Male " " .....	"	.43	.45	.48	.62	.72
" " " " Galvanized .....	"	.65	.70	.72	.93	1.08
Size .....	inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	....
Price, with Female Union .....	each	.90	1.05	1.55	2.85	....
" " " " Galvanized .....	"	1.35	1.58	2.35	4.30	....
" " Male " " .....	"	1.05	1.20	1.80	3.30	....
" " " " Galvanized .....	"	1.60	1.80	2.70	4.95	....

## UNION TEES

WITH FEMALE UNION

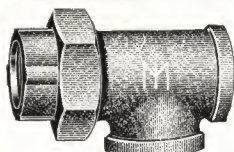


Fig. 6083C

WITH MALE UNION



Fig. 6083D

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, with Female Union .....	each	.40	.43	.45	.57	.70
" " " " Galvanized .....	"	.60	.65	.68	.86	1.05
" " Male " " .....	"	.48	.50	.52	.65	.80
" " " " Galvanized .....	"	.72	.75	.78	1.00	1.20
Size .....	inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	....
Price, with Female Union .....	each	.95	1.15	1.70	3.20	....
" " " " Galvanized .....	"	1.45	1.75	2.55	4.80	....
" " Male " " .....	"	1.10	1.30	1.95	3.70	....
" " " " Galvanized .....	"	1.65	1.95	2.95	5.55	....

## MALLEABLE IRON FITTINGS

### BOILER ELLS

No. 1



Fig. 9441A

No. 2



Fig. 9441B

NEW STYLE



Fig. 9441C

Size .....	inches	Female $\frac{3}{4}$ x $\frac{3}{4}$ x1	Male $\frac{3}{4}$ x $\frac{1}{2}$ x1	Female $\frac{1}{2}$ x $\frac{1}{2}$ x1	Male $\frac{1}{2}$ x $\frac{1}{2}$ x1
Price, No. 1, Galvanized.....	each	.40	.40	.40	.40
" " 2, with Union, Galvanized.....	"	.75	.75	.60	.60
" New Style, with Union, Galvanized.....	"	.75	.75	.60	.60

### BOILER COUPLINGS

No. 3

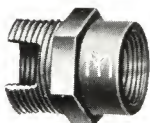


Fig. 9441D

No. 4



Fig. 9441E

NEW STYLE



Fig. 9441F

Size .....	inches	Female $\frac{3}{4}$ x $\frac{3}{4}$ x1	Male $\frac{3}{4}$ x $\frac{1}{2}$ x1	Female $\frac{1}{2}$ x $\frac{1}{2}$ x1	Male $\frac{1}{2}$ x $\frac{1}{2}$ x1
Price, No. 3, Galvanized.....	each	.40	.40	.40	.40
" " 4, with Union, Galvanized.....	"	.75	.75	.60	.60
" New Style, with Union, Galvanized.....	"	.75	.75	.60	.60

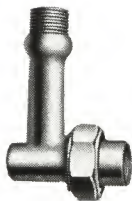


Fig. 9441G

### LAWLER BOILER UNION TEES

For Bottom Connection of Range Boiler

Price, 1-inch Male, $\frac{3}{4}$ -inch Union, $\frac{1}{2}$ -inch Draw-off, Galvanized. each	.60
---	-----

## RAILING FITTINGS

## MALLEABLE IRON

No. 1  
ELBOW

Fig. 6106A

No. 2  
SIDE OUTLET ELBOW

Fig. 6106B

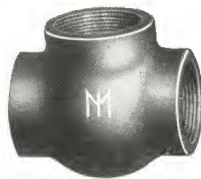
No. 3  
TEE

Fig. 6106C

No. 4  
SIDE OUTLET TEE

Fig. 6106D

No. 5  
CROSS

Fig. 6106E

No. 6  
SIDE OUTLET CROSS

Fig. 6106F

No. 7  
FLANGE

Fig. 6106G

No. 8  
ACORN

Fig. 6106H

No. 9  
FLOOR FLANGE

Fig. 6106J

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, No. 1, Elbows.....each	.15	.18	.20	.35	.45	.72	1.60	2.25
" " 2, Side Outlet Elbows.. "	.20	.23	.25	.40	.50	.80	1.75	2.50
" " 3, Tees..... "	.20	.23	.25	.40	.50	.75	1.75	2.50
" " 4, Side Outlet Tees " "	.30	.33	.35	.45	.55	.90	1.90	2.60
" " 5, Crosses..... "	.30	.33	.35	.45	.58	1.00	1.80	2.60
" " 6, Side Outlet Crosses.. "	.35	.38	.40	.50	.65	1.35	2.00	2.75
" " 7, Flanges..... "	.14	.15	.15	.20	.28	.30	....	....
" " 8, Acorns..... "	.16	.18	.20	.25	.35	.90	1.35	2.00
" " 9, Floor Flanges.. "	.16	.18	.20	.40	.50	.90	1.35	2.50

In ordering railing fittings, describe kind wanted by number and size. Railing fittings will always be furnished with all openings tapped right-hand unless otherwise specified. Railing fittings tapped right and left or left-hand will be charged for at 15 per cent additional, net. For galvanized railing fittings, add 50 per cent to above list.



## ADJUSTABLE RAILING FITTINGS

## MALLEABLE IRON

No. 70



Fig. 5100A

No. 71



Fig. 5100B

No. 72



Fig. 5100C

No. 73

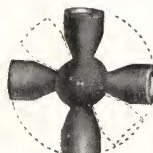


Fig. 5100D

No. 74



Fig. 5100E

No. 75



Fig. 5100F

No. 76



Fig. 5100G

No. 79

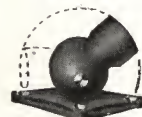


Fig. 5100H

Pipe Size.....inches	1	1¼	1½	2
Price, No. 70, Elbow.....each	1.10	1.25	1.70	2.25
" " 71, Tee....."	1.30	1.50	2.00	2.50
" " 72, Stair Tee....."	1.30	1.60	2.15	2.50
" " 73, Cross....."	1.50	1.75	2.35	2.75
" " 74, Stair Cross....."	1.50	1.85	2.50	2.75
" " 75 " Landing Tee....."	.90	1.10	1.50	2.15
" " 76 " " Cross....."	1.00	1.20	1.60	2.40
" " 79, Flange....."	1.65	1.75	1.90	2.50

Add 50 per cent to above prices for galvanized railing fittings.

Almost any angle required for stair railings may be obtained with these fittings.

All openings will be furnished tapped right-hand. When ordered tapped otherwise they will be charged 15 per cent additional net.

In ordering describe kind wanted by number and size.

## EXTRA HEAVY MALLEABLE IRON FITTINGS

For Steam Working Pressures up to 250 Pounds

Tested to Hydraulic Pressures Corresponding to the  
above Working Pressures

ELBOW



Fig. 6028A

LONG SWEEP ELBOW



Fig. 6028B

TEE

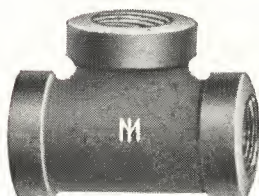


Fig. 6028C

CROSS



Fig. 6028D

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, Elbows.....each	.20	.25	.30	.35	.40	.55	.70	.90	1.50
" 45° Elbows.... "	.25	.30	.35	.42	.50	.65	.85	1.10	1.85
" Long Sweep Elbows.. "	....	....	....	....	.64	.80	1.10	1.60	2.40
" Tees..... "	.30	.40	.45	.50	.60	.80	1.05	1.35	2.25
" Crosses..... "	.60	.80	.90	1.00	1.20	1.60	2.10	2.70	4.50
" Reducers..... "	....	....	....	.30	.40	.45	.55	.70	....
Size.....inches	3	$3\frac{1}{2}$	4	5	6	8	10	12	....
Price, Elbows.....each	2.40	3.25	4.25	6.50	9.50	21.00	37.00	60.00	....
" 45° Elbows.... "	2.85	4.00	5.00	7.50	10.50	....	....	....	....
" Long Sweep Elbows.. "	4.50	6.50	7.00	13.00	17.50	....	....	....	....
" Tees..... "	3.60	5.00	6.50	9.75	14.25	32.00	55.00	90.00	....
" Crosses..... "	7.20	10.00	13.00	19.50	28.50	....	....	....	....

Galvanized extra heavy malleable fittings made to order at 50 per cent advance on above list.

Long sweep elbows, 45° elbows and crosses are not carried in stock in reducing sizes, but will be made to order by bushing in the sand from the straight patterns, at a special price, according to quantity wanted.

The above can also be used for hydraulic fittings.

## STANDARD CAST IRON FLAT BAND SCREWED FITTINGS

For Steam Working Pressures up to 125 Pounds

We believe that we make the best cast iron fittings produced in the United States and base our claims on the quality of iron that we use, special care being taken to maintain uniformity.

The general design of our fittings commends itself to all critical buyers; they are well proportioned, of right weight and generally suitable for steam working pressures, if properly installed, not exceeding 125 pounds.

These fittings have been subjected to tests which show a large factor of safety when used at this pressure, but there are so many other conditions, such as strains of expansion and contraction, the sagging of pipe lines, water hammer and other causes, that it is not safe to base conclusions as to working strains entirely on the thickness or weight.

When cast iron fittings are wanted for greater steam working pressure than 125 pounds, we recommend the use of extra heavy fittings, which are suitable generally, if properly installed, for 250 pounds steam working pressure.

### VARIETY OF SIZES

We enumerate on pages 28-31, standard sizes usually carried in stock, which we think are fully sufficient to meet all the requirements of the trade. Fittings can be made to order if necessary, but as there is considerable expense involved in making special fittings, we recommend the use of bushings. If, however, fittings without bushings are absolutely necessary, a special price will be charged, which will be given on receipt of specifications.

### GALVANIZED CAST IRON FITTINGS

We carry a large stock of galvanized cast iron fittings, including all straight sizes and the leading reducing sizes; those not regularly carried in stock can be made to order.



## CAST IRON FITTINGS

LIST OF SIZES  
ELBOWS

$\frac{1}{4} \times \frac{1}{4}$	$1 \times \frac{3}{4}$	$1\frac{1}{2} \times 1$	$2\frac{1}{2} \times 1\frac{1}{4}$	$3\frac{1}{2} \times 2$	$5 \times 4$	$8 \times 6$
$\frac{3}{8} \times \frac{3}{8}$	$1 \times \frac{1}{2}$	$1\frac{1}{2} \times \frac{3}{4}$	$2\frac{1}{2} \times 1$	$4 \times 4$	$5 \times 3$	$9 \times 9$
$\frac{3}{8} \times \frac{1}{4}$	$1 \times \frac{3}{8}$	$2 \times 2$	$3 \times 3$	$4 \times 3\frac{1}{2}$	$5 \times 2\frac{1}{2}$	$10 \times 10$
$\frac{1}{2} \times \frac{1}{2}$	$1\frac{1}{4} \times 1\frac{1}{4}$	$2 \times 1\frac{1}{2}$	$3 \times 2\frac{1}{2}$	$4 \times 3$	$6 \times 6$	$10 \times 8$
$\frac{1}{2} \times \frac{3}{8}$	$1\frac{1}{4} \times 1$	$2 \times 1\frac{1}{4}$	$3 \times 2$	$4 \times 2\frac{1}{2}$	$6 \times 5$	$12 \times 12$
$\frac{1}{2} \times \frac{1}{4}$	$1\frac{1}{4} \times \frac{3}{4}$	$2 \times 1$	$3 \times 1\frac{1}{2}$	$4 \times 2$	$6 \times 4$	.....
$\frac{3}{4} \times \frac{3}{4}$	$1\frac{1}{4} \times \frac{1}{2}$	$2 \times \frac{3}{4}$	$3 \times 1\frac{1}{4}$	$4\frac{1}{2} \times 4\frac{1}{2}$	$7 \times 7$	.....
$\frac{3}{4} \times \frac{1}{2}$	$1\frac{1}{4} \times \frac{3}{8}$	$2\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4$	$7 \times 6$	.....
$\frac{3}{4} \times \frac{3}{8}$	$1\frac{1}{2} \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2$	$3\frac{1}{2} \times 3$	$5 \times 5$	$8 \times 8$	.....
$1 \times 1$	$1\frac{1}{2} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 2\frac{1}{2}$	$5 \times 4\frac{1}{2}$	$8 \times 7$	.....

## RIGHT AND LEFT ELBOWS

$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
---------------	---------------	---------------	---------------	---	----------------	----------------	---	----------------	---

## 45° ELBOWS

$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
---------------	---------------	---------------	---	----------------	----------------	---	----------------	---	----------------	---	----------------	---	---	---	---	---	----	----

## 60° AND 22½° ELBOWS

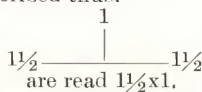
$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
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## PITCHED ELBOWS

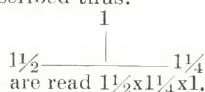
$\frac{3}{4} \times \frac{1}{2}$	1	$1\frac{1}{2} \times 1$	$2 \times 1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2} \times 3$
$\frac{3}{4}$	$1\frac{1}{4} \times 1$	$1\frac{1}{2} \times 1\frac{1}{4}$	2	$3 \times 2\frac{1}{2}$	$3\frac{1}{2}$
$1 \times \frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{2} \times 2$	3	4

## TEES

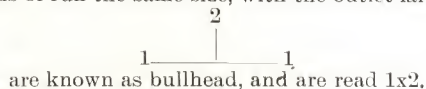
Tees reducing on the outlet are described thus:



Tees reducing on the run are described thus:



Tees with both ends of run the same size, with the outlet larger, thus:



$\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$	$\frac{1}{2} \times \frac{1}{2} \times \frac{3}{4}$	$1 \times 1\frac{1}{2} \times 1$	$1\frac{1}{4} \times 1\frac{1}{4} \times 1$	$1\frac{1}{4} \times \frac{3}{4} \times 1\frac{1}{4}$
$\frac{3}{8} \times \frac{3}{8} \times \frac{3}{8}$	$\frac{3}{4} \times \frac{3}{4} \times 1\frac{1}{2}$	$1 \times 1 \times 1$	$1 \times 1\frac{1}{2} \times \frac{3}{4}$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	$1\frac{1}{4} \times \frac{3}{4} \times 1$
$\frac{3}{8} \times \frac{3}{8} \times 1\frac{1}{4}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{8}$	$1 \times 1 \times \frac{3}{4}$	$1 \times 1\frac{1}{2} \times \frac{1}{2}$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{2}$	$1\frac{1}{4} \times \frac{3}{4} \times \frac{3}{4}$
$\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4} \times 1\frac{1}{4}$	$1 \times 1 \times \frac{1}{2}$	$1 \times \frac{3}{8} \times 1$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{8}$	$1\frac{1}{4} \times 1\frac{1}{2} \times 1\frac{1}{4}$
$\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{8}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$	$1 \times 1 \times \frac{3}{8}$	$1 \times \frac{1}{4} \times 1$	$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{4}$	.....
$\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{4}$	$\frac{3}{4} \times \frac{3}{4} \times 1\frac{1}{2}$	$1 \times 1 \times \frac{1}{4}$	$\frac{3}{4} \times \frac{3}{4} \times 1$	$1\frac{1}{4} \times 1 \times 1\frac{1}{4}$	.....
$\frac{1}{2} \times \frac{3}{8} \times 1\frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$	$1 \times \frac{3}{4} \times 1$	$\frac{3}{4} \times 1\frac{1}{2} \times 1$	$1\frac{1}{4} \times 1 \times 1$	.....
$\frac{1}{2} \times \frac{3}{8} \times \frac{3}{8}$	$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{8}$	$1 \times \frac{3}{4} \times \frac{3}{4}$	$\frac{1}{2} \times 1\frac{1}{2} \times 1$	$1\frac{1}{4} \times 1 \times \frac{3}{4}$	.....
$\frac{3}{8} \times \frac{3}{8} \times 1\frac{1}{2}$	$\frac{3}{4} \times 1\frac{1}{4} \times \frac{3}{4}$	$1 \times \frac{3}{4} \times \frac{1}{2}$	$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$1\frac{1}{4} \times 1 \times \frac{1}{2}$	.....

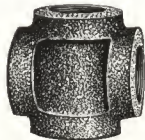
## CAST IRON FITTINGS

## LIST OF SIZES—TEES

1 1/4 x 1/2 x 1 1/4	2 x 3/4 x 2	3 x 2 1/2 x 3	4 x 3 1/2 x 3 1/2	5 x 4 x 4 1/2	7 x 6 x 6
1 1/4 x 1 1/2 x 1	2 x 3/4 x 1 1/2	3 x 2 1/2 x 2 1/2	4 x 3 1/2 x 3	5 x 4 x 4	7 x 6 x 5
1 x 1 x 1 1/4	2 x 1/2 x 1 1/2	3 x 2 1/2 x 2	4 x 3 1/2 x 2 1/2	5 x 4 x 3 1/2	7 x 6 x 4
1 x 3/4 x 1 1/4	2 x 1/4 x 2	3 x 2 1/2 x 1 1/2	4 x 3 1/2 x 2	5 x 4 x 3	7 x 6 x 3
3/4 x 3/4 x 1 1/4	2 x 1/2 x 2	3 x 2 1/2 x 1 1/4	4 x 3 1/2 x 1 1/2	5 x 4 x 2 1/2	7 x 5 x 6
1 1/2 x 1 1/2 x 1 1/2	1 1/2 x 1 1/2 x 2	3 x 2 1/2 x 1	4 x 3 1/2 x 1 1/4	5 x 4 x 2	7 x 5 x 5
1 1/2 x 1 1/2 x 1 1/4	1 1/2 x 1 1/4 x 2	3 x 2 1/2 x 3/4	4 x 3 1/2 x 1	5 x 4 x 1 1/2	6 x 6 x 7
1 1/2 x 1 1/2 x 1	1 1/2 x 1 x 2	3 x 2 x 3	4 x 3 x 4	5 x 3 1/2 x 3 1/2	5 x 5 x 7
1 1/2 x 1 1/2 x 3/4	1 1/2 x 3/4 x 2	3 x 2 x 2 1/2	4 x 3 x 3 1/2	5 x 3 x 5	8 x 8 x 8
1 1/2 x 1 1/2 x 1 1/2	1 1/4 x 1 1/4 x 2	3 x 2 x 2	4 x 3 x 3	5 x 3 x 4 1/2	8 x 8 x 7
1 1/2 x 1 1/4 x 1 1/2	1 1/4 x 1 x 2	3 x 2 x 1 1/2	4 x 3 x 2 1/2	5 x 3 x 4	8 x 8 x 6
1 1/2 x 1 1/4 x 1 1/4	1 1/4 x 3/4 x 2	3 x 2 x 1 1/4	4 x 3 x 2	5 x 3 x 3 1/2	8 x 8 x 5
1 1/2 x 1 1/4 x 1	1 x 1 x 2	3 x 2 x 1	4 x 3 x 1 1/2	5 x 3 x 3	8 x 8 x 4
1 1/2 x 1 1/4 x 3/4	1 x 3/4 x 2	3 x 1 1/2 x 3	4 x 3 x 1 1/4	5 x 3 x 2 1/2	8 x 8 x 3 1/2
1 1/2 x 1 1/4 x 1/2	3/4 x 3/4 x 2	3 x 1 1/2 x 2 1/2	4 x 3 x 1	5 x 3 x 2	8 x 8 x 3
1 1/2 x 1 x 1 1/2	2 1/2 x 2 1/2 x 2 1/2	3 x 1 1/2 x 2	4 x 3 x 3/4	5 x 2 1/2 x 5	8 x 8 x 2 1/2
1 1/2 x 1 x 1 1/4	2 1/2 x 2 1/2 x 2	3 x 1 1/4 x 3	4 x 2 1/2 x 4	5 x 2 1/2 x 4	8 x 8 x 2
1 1/2 x 1 x 1	2 1/2 x 2 1/2 x 1 1/2	3 x 1 x 3	4 x 2 1/2 x 3 1/2	5 x 2 1/2 x 3	8 x 8 x 1 1/2
1 1/2 x 1 x 3/4	2 1/2 x 2 1/2 x 1 1/4	2 1/2 x 2 x 3	4 x 2 1/2 x 3	5 x 2 x 5	8 x 8 x 1 1/4
1 1/2 x 1 x 1/2	2 1/2 x 2 1/2 x 1	2 1/2 x 2 x 3	4 x 2 1/2 x 2 1/2	5 x 1 1/4 x 5	8 x 7 x 8
1 1/2 x 3/4 x 1 1/2	2 1/2 x 2 1/2 x 3/4	2 1/2 x 1 1/2 x 3	4 x 2 1/2 x 2	4 x 4 x 5	8 x 7 x 6
1 1/2 x 3/4 x 1 1/4	2 1/2 x 2 1/2 x 1/2	2 x 2 x 3	4 x 2 1/2 x 1 1/2	6 x 6 x 6	8 x 7 x 5
1 1/2 x 3/4 x 1	2 1/2 x 2 x 2 1/2	3 1/2 x 3 1/2 x 3 1/2	4 x 2 1/2 x 1 1/4	6 x 6 x 5	8 x 7 x 4
1 1/2 x 3/4 x 3/4	2 1/2 x 2 x 2	3 1/2 x 3 1/2 x 3	4 x 2 1/2 x 1	6 x 6 x 4 1/2	8 x 7 x 3
1 1/2 x 1 1/2 x 1 1/2	2 1/2 x 2 x 1 1/2	3 1/2 x 3 1/2 x 2 1/2	4 x 2 x 4	6 x 6 x 4	8 x 6 x 8
1 1/2 x 1 1/2 x 1 1/4	2 1/2 x 2 x 1 1/4	3 1/2 x 3 1/2 x 2	4 x 2 x 3	6 x 6 x 3 1/2	8 x 6 x 7
1 1/2 x 1 1/2 x 1	2 1/2 x 2 x 1	3 1/2 x 3 1/2 x 1 1/2	4 x 2 x 2 1/2	6 x 6 x 3	8 x 6 x 6
1 1/2 x 3/8 x 1 1/2	2 1/2 x 2 x 3/4	3 1/2 x 3 1/2 x 1 1/4	4 x 2 x 2	6 x 6 x 2 1/2	8 x 5 x 8
1 1/4 x 1 1/4 x 1 1/2	2 1/2 x 2 x 1/2	3 1/2 x 3 1/2 x 1	4 x 1 1/2 x 4	6 x 6 x 2	8 x 5 x 5
1 1/4 x 1 x 1 1/2	2 1/2 x 1 1/2 x 2 1/2	3 1/2 x 3 1/2 x 3/4	4 x 1 1/4 x 4	6 x 6 x 1 1/2	8 x 4 x 8
1 1/4 x 3/4 x 1 1/2	2 1/2 x 1 1/2 x 2	3 1/2 x 3 x 3 1/2	4 x 1 x 4	6 x 6 x 1 1/4	8 x 4 x 6
1 x 1 x 1 1/2	2 1/2 x 1 1/2 x 1 1/2	3 1/2 x 3 x 3	3 1/2 x 3 1/2 x 4	6 x 6 x 1	6 x 6 x 8
1 x 3/4 x 1 1/2	2 1/2 x 1 1/2 x 1 1/4	3 1/2 x 3 x 2 1/2	3 x 3 x 4	6 x 5 x 6	9 x 9 x 9
3/4 x 3/4 x 1 1/2	2 1/2 x 1 1/2 x 1	3 1/2 x 3 x 2	2 1/2 x 2 1/2 x 4	6 x 5 x 5	9 x 9 x 7
2 x 2 x 2	2 1/2 x 1 1/4 x 2 1/2	3 1/2 x 3 x 1 1/2	2 x 2 x 4	6 x 5 x 4	9 x 9 x 6
2 x 2 x 1 1/2	2 1/2 x 1 1/4 x 2	3 1/2 x 3 x 1 1/4	4 1/2 x 4 1/2 x 4 1/2	6 x 5 x 3 1/2	9 x 9 x 5
2 x 2 x 1 1/4	2 1/2 x 1 1/4 x 1 1/2	3 1/2 x 3 x 1	4 1/2 x 4 1/2 x 4	6 x 5 x 3	10 x 10 x 10
2 x 2 x 1	2 1/2 x 1 x 2 1/2	3 1/2 x 3 x 3/4	4 1/2 x 4 1/2 x 3 1/2	6 x 5 x 2 1/2	10 x 10 x 8
2 x 2 x 3/4	2 1/2 x 1 x 2	3 1/2 x 2 1/2 x 3 1/2	4 1/2 x 4 1/2 x 3	6 x 5 x 1 1/2	10 x 10 x 6
2 x 2 x 1/2	2 1/2 x 3/4 x 2 1/2	3 1/2 x 2 1/2 x 3	4 1/2 x 4 1/2 x 2 1/2	6 x 4 x 6	10 x 10 x 5
2 x 2 x 1/4	2 1/2 x 1/2 x 2 1/2	3 1/2 x 2 1/2 x 2 1/2	4 1/2 x 4 1/2 x 2	6 x 4 x 4	10 x 10 x 4
2 x 1 1/2 x 2	2 x 2 x 2 1/2	3 1/2 x 2 1/2 x 2	4 1/2 x 4 1/2 x 1 1/2	6 x 4 x 3	10 x 10 x 3
2 x 1 1/2 x 1 1/2	2 x 1 1/2 x 2 1/2	3 1/2 x 2 x 3 1/2	4 1/2 x 4 1/2 x 1 1/4	6 x 3 x 6	10 x 10 x 2
2 x 1 1/2 x 1 1/4	2 x 1 1/4 x 2 1/2	3 1/2 x 1 1/2 x 3 1/2	4 1/2 x 4 1/2 x 1	6 x 2 1/2 x 6	10 x 8 x 8
2 x 1 1/2 x 1	2 x 1 x 2 1/2	3 1/2 x 1 1/4 x 3 1/2	4 1/2 x 4 x 3	6 x 2 x 6	8 x 8 x 10
2 x 1 1/2 x 3/4	2 x 3/4 x 2 1/2	3 1/2 x 1 x 3 1/2	5 x 5 x 5	5 x 5 x 6	12 x 12 x 12
2 x 1 1/2 x 1/2	1 1/2 x 1 1/2 x 2 1/2	3 x 3 x 3 1/2	5 x 5 x 4 1/2	5 x 3 1/2 x 6	12 x 12 x 10
2 x 1 1/4 x 2	1 1/2 x 1 1/4 x 2 1/2	4 x 4 x 4	5 x 5 x 4	4 x 4 x 6	12 x 12 x 8
2 x 1 1/4 x 1 1/2	1 1/2 x 1 x 2 1/2	4 x 4 x 3 1/2	5 x 5 x 3 1/2	7 x 7 x 7	12 x 12 x 6
2 x 1 1/4 x 1 1/4	3 x 3 x 3	4 x 4 x 3	5 x 5 x 3	7 x 7 x 6	12 x 12 x 5
2 x 1 1/4 x 1	3 x 3 x 2 1/2	4 x 4 x 2 1/2	5 x 5 x 2 1/2	7 x 7 x 5	12 x 12 x 4
2 x 1 1/4 x 3/4	3 x 3 x 2	4 x 4 x 2	5 x 5 x 2	7 x 7 x 4	12 x 8 x 10
2 x 1 x 2	3 x 3 x 1 1/2	4 x 4 x 1 1/2	5 x 5 x 1 1/2	7 x 7 x 3 1/2	12 x 8 x 8
2 x 1 x 1 1/2	3 x 3 x 1 1/4	4 x 4 x 1 1/4	5 x 5 x 1 1/4	7 x 7 x 3	.....
2 x 1 x 1 1/4	3 x 3 x 1	4 x 4 x 1	5 x 5 x 1	7 x 7 x 2 1/2	.....
2 x 1 x 1	3 x 3 x 3/4	4 x 4 x 3/4	5 x 5 x 3/4	7 x 7 x 2	.....
2 x 1 x 3/4	3 x 3 x 1/2	4 x 3 1/2 x 4	5 x 4 x 5	7 x 6 x 7	.....



# LIST OF SIZES OF CAST IRON FITTINGS CROSSES



$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$	2 x2 x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 x3 x2 $\frac{1}{2}$ x2 $\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 2 \times 1\frac{1}{2}$	6x 6x 4 x 4
$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$	2 x2 x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	3 x3 x2 x2	$3\frac{1}{2} \times 3 \times 1\frac{1}{2} \times 1\frac{1}{2}$	6x 6x 3 x 3
$\frac{3}{4} \times \frac{3}{4} \times \frac{1}{2} \times \frac{1}{2}$	2 x2 x1 x1	3 x3 x2 x1 $\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 1\frac{1}{2} \times 1\frac{1}{4}$	6x 6x 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$
$\frac{3}{4} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$	2 x2 x $\frac{3}{4}$ x $\frac{3}{4}$	3 x3 x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	4 x4 x4 x4	6x 6x 2 x 2
1 x1 x1 x1	2 x1 $\frac{1}{2}$ x1 $\frac{1}{4}$ x1	3 x3 x1 $\frac{1}{2}$ x1 $\frac{1}{4}$	4 x4 x3 $\frac{1}{2}$ x3 $\frac{1}{2}$	7x 7x 7 x 7
1 x1 x $\frac{3}{4}$ x $\frac{3}{4}$	2 x1 $\frac{1}{2}$ x1 x1	3 x3 x1 $\frac{1}{2}$ x $\frac{3}{4}$	4 x4 x3 x3	7x 7x 6 x 6
1 x1 x $\frac{1}{2}$ x $\frac{1}{2}$	2 x1 $\frac{1}{2}$ x $\frac{3}{4}$ x $\frac{3}{4}$	3 x3 x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	4 x4 x2 $\frac{1}{2}$ x2 $\frac{1}{2}$	7x 7x 5 x 5
1 x $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x2 $\frac{1}{2}$	3 x3 x1 x1	4 x4 x2 x2	8x 8x 8 x 8
1 $\frac{1}{4}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x2 x2	3 x3 x $\frac{3}{4}$ x $\frac{3}{4}$	4 x4 x2 x1 $\frac{1}{2}$	8x 8x 7 x 7
1 $\frac{1}{4}$ x1 $\frac{1}{4}$ x1 x1	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 x2 $\frac{1}{2}$ x2 x2	4 x4 x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	8x 8x 6 x 6
1 $\frac{1}{4}$ x1 $\frac{1}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	3 x2 $\frac{1}{2}$ x2 x1 $\frac{1}{2}$	4 x4 x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	8x 8x 5 x 5
1 $\frac{1}{4}$ x1 $\frac{1}{4}$ x $\frac{1}{2}$ x $\frac{1}{2}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x1 x1	3 x2 $\frac{1}{2}$ x2 x1 $\frac{1}{4}$	4 x4 x1 x1	8x 8x 4 x 4
1 $\frac{1}{4}$ x1 x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{3}{4}$ x $\frac{3}{4}$	3 x2 $\frac{1}{2}$ x2 x $\frac{3}{4}$	4 x3 $\frac{1}{2}$ x2 x2	9x 9x 9 x 9
1 $\frac{1}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 x2 x1 $\frac{1}{2}$	3 x2 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	4 x3 $\frac{1}{2}$ x2 x1 $\frac{1}{2}$	10x10x10 x10
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	2 $\frac{1}{2}$ x2 x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	3 x2 $\frac{1}{2}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	4 x3 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	10x10x 8 x 8
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	2 $\frac{1}{2}$ x2 x1 $\frac{1}{2}$ x1 $\frac{1}{4}$	3 x2 $\frac{1}{2}$ x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	4 $\frac{1}{2}$ x4 $\frac{1}{2}$ x4 $\frac{1}{2}$ x4 $\frac{1}{2}$	10x10x 7 x 7
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 x1	2 $\frac{1}{2}$ x2 x1 $\frac{1}{2}$ x1	3 x2 x2 x2	5 x5 x5 x5	12x12x12 x12
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 x1 $\frac{1}{4}$ x1 $\frac{1}{4}$	$3\frac{1}{2}$ x3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x3 $\frac{1}{2}$	5 x5 x4 x4	12x12x10 x10
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	2 $\frac{1}{2}$ x2 x1 $\frac{1}{4}$ x1	$3\frac{1}{2}$ x3 $\frac{1}{2}$ x3 x3	5 x5 x3 x3	12x12x 8 x 8
1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 x1	2 $\frac{1}{2}$ x2 x1 x1	$3\frac{1}{2}$ x3 $\frac{1}{2}$ x2 $\frac{1}{2}$ x2 $\frac{1}{2}$	5 x5 x2 $\frac{1}{2}$ x2 $\frac{1}{2}$	.....
1 $\frac{1}{2}$ x1 $\frac{1}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x2 x $\frac{3}{4}$ x $\frac{3}{4}$	$3\frac{1}{2}$ x3 $\frac{1}{2}$ x2 x2	5 x5 x2 x2	.....
1 $\frac{1}{2}$ x1 x $\frac{3}{4}$ x $\frac{3}{4}$	2 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1	$3\frac{1}{2}$ x3 $\frac{1}{2}$ x1 $\frac{1}{2}$ x1 $\frac{1}{2}$	6 x6 x6 x6	.....
2 x2 x2 x2	3 x3 x3 x3	$3\frac{1}{2}$ x3 x2 x2	6 x6 x5 x5	.....

## REDUCERS



$4\frac{1}{2} \times 4$	5 x 3	6 x 4	6 x 2	8 x 4
5 x $4\frac{1}{2}$	5 x $2\frac{1}{2}$	6 x $3\frac{1}{2}$	7 x 6	10 x 8
5 x 4	5 x 2	6 x 3	8 x 7	10 x 6
5 x $3\frac{1}{2}$	6 x 5	6 x $2\frac{1}{2}$	8 x 6	12 x 10

## Y BENDS

$\frac{1}{2}$	2	$4\frac{1}{2}$	..
$\frac{3}{4}$	$2\frac{1}{2}$	5	10
1	3	6	12
$1\frac{1}{4}$	$3\frac{1}{2}$	7	..
$1\frac{1}{2}$	4	8	..



## CAPS



4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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## PLUGS

$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12	..



## LOCKNUTS



$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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## CAST IRON AND MALLEABLE FITTINGS

## LIST OF SIZES

## BUSHINGS

$\frac{1}{4} \times \frac{1}{8}$	$1 \times \frac{3}{4}$	$1\frac{1}{2} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 1\frac{1}{4}$	$3\frac{1}{2} \times 1\frac{1}{4}$	$4 \times 3\frac{1}{2}$	$5 \times 4\frac{1}{2}$	7x3	8x6	12x 6
$\frac{3}{8} \times \frac{1}{8}$	$1\frac{1}{4} \times \frac{1}{4}$	$2 \times \frac{1}{4}$	$2\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 1\frac{1}{2}$	$4\frac{1}{2} \times 2$	$6 \times 1\frac{1}{2}$	$7 \times 3\frac{1}{2}$	8x7	12x 8
$\frac{3}{8} \times \frac{1}{4}$	$1\frac{1}{4} \times \frac{3}{8}$	$2 \times \frac{3}{8}$	$2\frac{1}{2} \times 2$	$3\frac{1}{2} \times 2$	$4\frac{1}{2} \times 2\frac{1}{2}$	6x2	7x4	9x6	12x10
$\frac{1}{2} \times \frac{1}{4}$	$1\frac{1}{4} \times \frac{1}{2}$	$2 \times \frac{1}{2}$	$3 \times \frac{1}{2}$	$3\frac{1}{2} \times 2\frac{1}{2}$	$4\frac{1}{2} \times 3$	$6 \times 2\frac{1}{2}$	$7 \times 4\frac{1}{2}$	9x7	.....
$\frac{1}{2} \times \frac{3}{8}$	$1\frac{1}{4} \times \frac{3}{4}$	$2 \times \frac{3}{4}$	$3 \times \frac{3}{4}$	$3\frac{1}{2} \times 3$	$4\frac{1}{2} \times 3\frac{1}{2}$	6x3	7x5	9x8	.....
$\frac{3}{4} \times \frac{1}{4}$	$1\frac{1}{4} \times 1$	$2 \times 1$	$3 \times 1$	$4 \times 1$	$4\frac{1}{2} \times 4$	$6 \times 3\frac{1}{2}$	$7 \times 6$	10x4	.....
$\frac{3}{4} \times \frac{3}{8}$	$1\frac{1}{2} \times \frac{1}{4}$	$2 \times 1\frac{1}{4}$	$3 \times 1\frac{1}{4}$	$4 \times 1\frac{1}{4}$	$5 \times 2$	6x4	8x2	10x5	.....
$\frac{3}{4} \times \frac{1}{2}$	$1\frac{1}{2} \times \frac{3}{8}$	$2 \times 1\frac{1}{2}$	$3 \times 1\frac{1}{2}$	$4 \times 1\frac{1}{2}$	$5 \times 2\frac{1}{2}$	$6 \times 4\frac{1}{2}$	$8 \times 2\frac{1}{2}$	10x6	.....
$1 \times \frac{1}{4}$	$1\frac{1}{2} \times \frac{1}{2}$	$2\frac{1}{2} \times \frac{1}{2}$	$3 \times 2$	$4 \times 2$	$5 \times 3$	6x5	8x3	10x7	.....
$1 \times \frac{3}{8}$	$1\frac{1}{2} \times \frac{3}{4}$	$2\frac{1}{2} \times \frac{3}{4}$	$3 \times 2\frac{1}{2}$	$4 \times 2\frac{1}{2}$	$5 \times 3\frac{1}{2}$	7x2	8x4	10x8	.....
$1 \times \frac{1}{2}$	$1\frac{1}{2} \times 1$	$2\frac{1}{2} \times 1$	$3\frac{1}{2} \times 1$	$4 \times 3$	$5 \times 4$	$7 \times 2\frac{1}{2}$	8x5	10x9	.....

Reducing one size only are malleable up to  $2\frac{1}{2}$ -inch, inclusive.

## FACED BUSHINGS—MALLEABLE IRON

$\frac{3}{8} \times \frac{1}{4}$	$1 \times \frac{3}{4}$	$1\frac{1}{2} \times 1\frac{1}{4}$	$2 \times 1\frac{1}{4}$	$2\frac{1}{2} \times 1\frac{1}{2}$	$3 \times 1\frac{1}{2}$	$4 \times 3\frac{1}{2}$	$4\frac{1}{2} \times 4$	6x5
$\frac{1}{2} \times \frac{3}{8}$	$1 \times \frac{1}{2}$	$1\frac{1}{2} \times 1$	$2 \times 1$	$2\frac{1}{2} \times 1\frac{1}{4}$	$3\frac{1}{2} \times 3$	$4 \times 3$	$5 \times 4\frac{1}{2}$	6x4
$\frac{3}{4} \times \frac{1}{2}$	$1\frac{1}{4} \times 1$	$1\frac{1}{2} \times \frac{3}{4}$	$2 \times \frac{3}{4}$	$3 \times 2\frac{1}{2}$	$3\frac{1}{2} \times 2\frac{1}{2}$	$4 \times 2\frac{1}{2}$	$5 \times 4$	6x3
$\frac{3}{4} \times \frac{3}{8}$	$1\frac{1}{4} \times \frac{3}{4}$	$2 \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2$	$3 \times 2$	$3\frac{1}{2} \times 2$	$4 \times 2$	$5 \times 3$	.....

## LONG SWEEP FITTINGS—ELBOWS

1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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## No. 2 DOUBLE BRANCH ELBOWS

$1 \times 1 \times 1$	$2 \times 2 \times 2$	$2 \times 2 \times 3$	$2\frac{1}{2} \times 2\frac{1}{2} \times 4$	8x 8x 8
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$1\frac{1}{2} \times 1\frac{1}{2} \times 2$	$2\frac{1}{2} \times 2\frac{1}{2} \times 3$	$4\frac{1}{2} \times 4\frac{1}{2} \times 4\frac{1}{2}$	9x 9x 9
$1 \times 1 \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$	$5 \times 5 \times 5$	10x10x10
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{2}$	$2 \times 2 \times 2\frac{1}{2}$	$4 \times 4 \times 4$	$6 \times 6 \times 6$	12x12x12
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{2}$	$3 \times 3 \times 3$	$3 \times 3 \times 4$	$7 \times 7 \times 7$	.....

## No. 3 TEES

$1 \times 1 \times 1$	$1\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	$3 \times 3 \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{1}{2}$	$4 \times 4 \times 1\frac{1}{2}$	6x 6x 2
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$1\frac{1}{2} \times 1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2$	$3 \times 3 \times 2$	$3\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{1}{4}$	$4 \times 3 \times 3$	7x 7x 7
$1\frac{1}{4} \times 1\frac{1}{4} \times 1$	$2 \times 2 \times 2$	$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$	$3 \times 3 \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 2$	$4\frac{1}{2} \times 4\frac{1}{2} \times 4\frac{1}{2}$	8x 8x 8
$1\frac{1}{4} \times 1 \times 1$	$2 \times 2 \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{4}$	$3 \times 3 \times 1\frac{1}{4}$	$4 \times 4 \times 4$	$5 \times 5 \times 5$	9x 9x 9
$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	$2 \times 2 \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2 \times 2$	$3 \times 2\frac{1}{2} \times 2$	$4 \times 4 \times 3$	$5 \times 5 \times 3$	10x10x10
$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$	$2 \times 2 \times 1$	$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$	$4 \times 4 \times 2\frac{1}{2}$	$5 \times 5 \times 2$	12x12x12
$1\frac{1}{2} \times 1\frac{1}{2} \times 1$	$2 \times 1\frac{1}{2} \times 1\frac{1}{2}$	$3 \times 3 \times 3$	$3\frac{1}{2} \times 3\frac{1}{2} \times 2$	$4 \times 4 \times 2$	$6 \times 6 \times 6$	.....

## No. 4 CROSSES

$1 \times 1 \times 1 \times 1$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$	$5 \times 5 \times 4 \times 4$	$7 \times 7 \times 7 \times 7$	$9 \times 9 \times 9 \times 9$
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$	$4 \times 4 \times 4 \times 4$	$5 \times 5 \times 3 \times 3$	$8 \times 8 \times 8 \times 8$	$10 \times 10 \times 10 \times 10$
$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	$3 \times 3 \times 3 \times 3$	$4 \times 4 \times 2\frac{1}{2} \times 2\frac{1}{2}$	$6 \times 6 \times 6 \times 6$	$8 \times 8 \times 6 \times 6$	$12 \times 12 \times 12 \times 12$
$2 \times 2 \times 2 \times 2$	$3 \times 3 \times 1\frac{1}{2} \times 1\frac{1}{2}$	$5 \times 5 \times 5 \times 5$	$6 \times 6 \times 4 \times 4$	$8 \times 8 \times 4 \times 4$	.....

## No. 12 STRAIGHT BACK TEES

$1 \times 1 \times 1$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$	$3 \times 2\frac{1}{2} \times 2$	$3 \times 3 \times 4$	$6 \times 6 \times 4$	$9 \times 9 \times 9$
$1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 2$	$2\frac{1}{2} \times 2\frac{1}{2} \times 3$	$4\frac{1}{2} \times 4\frac{1}{2} \times 4\frac{1}{2}$	$5 \times 4 \times 6$	$10 \times 10 \times 10$
$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$	$3\frac{1}{2} \times 3\frac{1}{2} \times 3\frac{1}{2}$	$5 \times 5 \times 5$	$4 \times 4 \times 6$	$12 \times 12 \times 12$
$2 \times 2 \times 2$	$3 \times 3 \times 3$	$3\frac{1}{2} \times 3 \times 2$	$5 \times 5 \times 3$	$7 \times 7 \times 7$	.....
$2 \times 2 \times 1$	$3 \times 3 \times 1\frac{1}{2}$	$4 \times 4 \times 4$	$4 \times 4 \times 5$	$8 \times 8 \times 8$	.....
$2 \times 1\frac{1}{2} \times 1\frac{1}{2}$	$3 \times 3 \times 1$	$4 \times 4 \times 2\frac{1}{2}$	$4 \times 3\frac{1}{2} \times 5$	$8 \times 8 \times 6$	.....
$2 \times 1\frac{1}{2} \times 1$	$3 \times 2\frac{1}{2} \times 2\frac{1}{2}$	$3\frac{1}{2} \times 3 \times 4$	$6 \times 6 \times 6$	$8 \times 8 \times 4$	.....

## STANDARD CAST IRON FITTINGS

STRAIGHT



Fig. 7191A

ELBOWS

REDUCING



Fig. 7191B

45°



Fig. 7191C

## STRAIGHT SIZES

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black.. each	.05	.05	.06	.08	.10 1/2	.16	.20	.28	.50	.75
“ Galv... “	.10	.10	.12	.16	.21	.32	.40	.56	1.00	1.50
“ Pitched “	....	....	....	.10	.13	.20	.25	.35	.65	1.00
Size..... inches	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Price, Black.. each	1.05	1.20	1.75	2.00	2.75	4.70	6.75	9.00	13.50	20.00
“ Galv... “	2.10	2.40	3.50	4.00	5.50	9.40	13.50	18.00	27.00	40.00
“ Pitched “	1.30	1.50	....	....	....	....	....	....	....	....

## REDUCING

Size..... inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black.. each	.06	.07	.09	.12	.18	.23	.32	.60	.85	1.20
“ Galv... “	.12	.14	.18	.24	.36	.46	.64	1.20	1.70	2.40
“ Pitched, Blk. “	....	....	.10	.13	.20	.25	.35	.65	1.00	1.30
Size..... inches	4	4 1/2	5	6	7	8	9	10	12	....
Price, Black.. each	1.40	2.00	2.30	3.15	5.40	7.75	10.50	15.50	23.00	....
“ Galv... “	2.80	4.00	4.60	6.30	10.80	15.50	21.00	31.00	46.00	....

## RIGHT AND LEFT

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black.. each	.06	.06	.07	.09	.12	.18	.23	.32	.60	.85

The ribs in the band of right and left elbows denote the left-hand thread.

## 45°

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black.. each	.06	.06	.07	.10	.12	.19	.24	.34	.60	.90
“ Galv... “	.12	.12	.14	.20	.24	.38	.48	.68	1.20	1.80
Size..... inches	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Price, Black.. each	1.25	1.45	2.20	2.50	3.45	5.90	8.50	11.25	17.00	25.00
“ Galv... “	2.50	2.90	4.40	5.00	6.90	11.80	17.00	22.50	34.00	50.00

## 60° AND 22 1/2°

Size..... inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Price, Black..... each	.25	.30	.35	.45	.50	.60	1.10	1.65	2.75

## STANDARD CAST IRON FITTINGS

## TEES

STRAIGHT



Fig. 7267A

ON RUN



Fig. 7267B

REDUCING

ON OUTLET



Fig. 7267C

Size . . . . . inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Black . . . each	.08	.08	.09	.12	.15	.23	.29	.41	.73	1.10
" Galvanized . . . "	.16	.16	.18	.24	.30	.46	.58	.82	1.46	2.20
Size . . . . . inches	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Price, Black . . . each	1.50	1.75	2.55	3.00	4.00	6.80	9.75	13.00	19.50	29.00
" Galvanized . . . "	3.00	3.50	5.10	6.00	8.00	13.60	19.50	26.00	39.00	58.00

## REDUCING

Size . . . . . inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black . . . . . each	.10	.14	.17	.27	.33	.47	.83	1.25	1.75
" Galvanized . . . . . "	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50
Size . . . . . inches	4	4 1/2	5	6	7	8	9	10	12
Price, Black . . . . . each	2.00	2.95	3.50	4.60	7.80	11.25	15.00	22.50	33.50
" Galvanized . . . . . "	4.00	5.90	7.00	9.20	15.60	22.50	30.00	45.00	67.00

"Y" BEND



Fig. 7267D

MEDIUM REDUCING  
DOUBLE BRANCH ELBOWS

Fig. 7267E

## "Y" BENDS

Size . . . . . inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black . . . . . each	.20	.28	.34	.54	.66	.94	1.66	2.50	3.50
" Galvanized . . . . . "	.40	.56	.68	1.08	1.32	1.88	3.32	5.00	7.00
Size . . . . . inches	4	4 1/2	5	6	7	8	10	12	....
Price, Black . . . . . each	4.00	5.90	7.00	9.20	15.60	22.50	45.00	67.00	....
" Galvanized . . . . . "	8.00	11.80	14.00	18.40	31.20	45.00	90.00	134.00	....

## MEDIUM REDUCING DOUBLE BRANCH ELBOWS

Size . . . . . inches	1x1x1 1/4	1 1/4x1 1/4x1 1/2	1 1/2x1 1/2x2	2x2x2 1/2
Price . . . . . each	.75	1.05	1.50	2.25
Size . . . . . inches	2 1/2x2 1/2x3	3x3x4	4x4x5	5x5x6
Price . . . . . each	4.25	6.50	12.00	16.50



## STANDARD CAST IRON FITTINGS

## CROSSES

STRAIGHT



Fig. 7728A

REDUCING

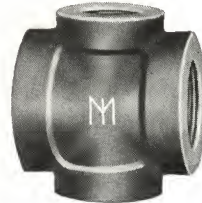


Fig. 7728B

## STRAIGHT

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black .....	each	.16	.22	.27	.42	.53	.75	1.30	2.00	2.70
" Galvanized .....	"	.32	.44	.54	.84	1.06	1.50	2.60	4.00	5.40
Size .....	inches	4	4 1/2	5	6	7	8	9	10	12
Price, Black .....	each	3.15	4.60	5.50	7.25	12.25	17.50	23.50	35.00	52.50
" Galvanized .....	"	6.30	9.20	11.00	14.50	24.50	35.00	47.00	70.00	105.00

## REDUCING

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black .....	each	.18	.25	.30	.46	.60	.83	1.45	2.20	3.00
" Galvanized .....	"	.36	.50	.60	.92	1.20	1.66	2.90	4.40	6.00
Size .....	inches	4	4 1/2	5	6	7	8	9	10	12
Price, Black .....	each	3.50	5.10	6.00	8.00	13.50	19.25	26.00	38.50	58.00
" Galvanized .....	"	7.00	10.20	12.00	16.00	27.00	38.50	52.00	77.00	116.00

ECCENTRIC  
REDUCER

REDUCER



Fig. 7728C



Fig. 7728D

CAP



Fig. 7728E

LOCKNUT



Fig. 7728F

Size .....	inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Reducers, Black .....	each	.06	.09	.10	.16	.22	.28	.43	.60	.80	1.00
" Eccentric Reducers, Black .....	"	....	....	....	.55	.55	.72	1.00	1.50	2.40	3.00
" Caps, Black .....	"	.03	.03	.05	.08	.14	.20	.26	.40	.54	.75
" Locknuts, Black .....	"	....	....	....	....	....	....	.25	.27	.34	.47
" " Galvanized .....	"	....	....	....	....	....	....	....	.54	.68	.94
Size .....	inches	4	4 1/2	5	6	7	8	9	10	12	....
Price, Reducers, Black .....	each	1.35	1.85	2.00	2.70	5.35	6.75	8.35	10.00	15.00	....
" " Galvanized .....	"	....	3.70	4.00	5.40	10.70	13.50	16.70	20.00	30.00	....
" Eccentric Reducers, Black .....	"	4.00	5.00	6.00	8.00	9.00	11.00	12.50	14.00	18.00	....
" Caps, Black .....	"	.87	1.05	1.20	1.55	2.50	2.85	4.75	5.50	7.00	....
" Galvanized .....	"	1.74	2.10	2.40	3.10	5.00	5.70	9.50	11.00	14.00	....
" Locknuts, Black .....	"	.64	.85	.90	1.30	1.70	2.35	2.70	3.00	4.00	....
" " Galvanized .....	"	1.28	1.70	1.80	2.60	3.40	4.70	5.40	6.00	8.00	....

## STANDARD CAST IRON FITTINGS

## RETURN BENDS

CLOSE PATTERN



Fig. 7968A

OPEN PATTERN



Fig. 7968B

Close pattern return bends will not make up parallel coils, as the distance, center to center, of two adjacent bends, is greater than the center to center of openings of a single bend.

## CLOSE PATTERN

Size . . . . . inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Center to Center . . . . . inches	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{5}{8}$	$4\frac{3}{8}$	6
R. H., Black . . . . . each	.17	.18	.20	.22	.28	.40	.57	1.20	1.70	5.00
“ Galv. . . . . “	....	.36	.40	.44	.56	.80	1.14	2.40	3.40	10.00
R. and L., Black . . . . . “	.20	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
L. H., Black . . . . . “	.20	.21	.23	.26	.33	.46	.66	1.40	1.95	5.25
R. H., Pitched, Black . . . . . “	....	....	.23	.26	.33	....	....	....	....	....
R. and L., or L. H., Pitched, Back. . . . . “	....	....	.23	.26	.33	....	....	....	....	....

Right and left and left-hand pitched return bends are made to order.

## OPEN PATTERN

Size . . . . . inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Center to Center . . . . . inches	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{3}{8}$	$6\frac{1}{2}$	7
Price, R. H., Black . . . . . each	.25	.26	.30	.40	.55	.80	1.35	2.20	6.50
“ Galvanized . . . . . “	.50	.52	.60	.80	1.10	1.60	2.70	4.40	11.50
“ R. and L., Black . . . . . “	.30	.30	.35	.46	.64	.92	1.55	2.50	7.00
“ L. H., Black . . . . . “	.30	.30	.35	.46	.64	.92	1.55	2.50	7.00

## WIDE PATTERN



Fig. 7968C

Size . . . inches	1	1	1	1	1	*1	1	$1\frac{1}{4}$	* $1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	* $1\frac{1}{4}$	* $1\frac{1}{4}$	$1\frac{1}{4}$
Center to Center, in.	$2\frac{3}{8}$	3	4	5	6	8	9	$2\frac{1}{8}$	$2\frac{1}{2}$	4	6	7	$7\frac{1}{2}$	8	9
Black . . . each	.30	.45	.50	.60	.75	1.50	1.25	.30	.60	1.00	1.25	1.40	2.25	2.50	2.00
Galv. . . . . “	.60	.80	.90	1.10	1.30	2.50	1.85	.55	1.10	1.75	2.00	2.25	3.75	4.00	3.25
Size . . . inches	$1\frac{1}{2}$	$1\frac{1}{2}$	*2	2	2	2	2	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	4	4	4
Center to Center, in.	6	8	$3\frac{5}{8}$	4	$4\frac{3}{4}$	5	6	8	12	8	10	5	6	7	11
Black . . . each	1.60	2.00	2.00	.80	1.75	1.90	2.00	3.50	4.50	5.50	6.00	5.50	6.25	6.50	7.50
Galv. . . . . “	2.60	3.25	3.25	1.60	3.00	3.15	3.25	5.00	7.00	9.00	10.00	9.00	9.75	10.00	11.00

\*These sizes are extra heavy.

## STANDARD CAST IRON FITTINGS

BUSHING



Fig. 9642A

PLUG

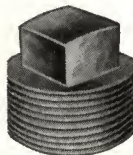


Fig. 9642B

COUNTERSUNK PLUG



Fig. 9642C

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Bushings, Black .....	each	....	....	.04	.04	.05	.06	.07	.09	.14	.21	.30
" " Galvanized .....	"	....	....	.08	.08	.10	.12	.14	.18	.28	.42	.60
" Plugs, Black .....	"	.02	.02	.02	.02	.03	.04	.05	.07	.10	.18	.25
" " Galvanized .....	"	....	.04	.04	.04	.06	.08	.10	.14	.20	.36	.50
" " Countersunk .....	"	....	....	....	.04	.06	.08	.09	.11	.15	.30	.40

Size .....	inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12	....
Price, Bushings, Black .....	each	.40	.50	.75	.93	1.25	1.87	2.75	3.25	3.75	5.00	....
" " Galvanized .....	"	.80	1.00	1.50	1.85	2.50	3.75	5.50	6.50	7.50	10.00	....
" Plugs, Black .....	"	.38	.42	.65	.88	1.20	1.85	2.75	3.25	3.75	5.00	....
" " Galvanized .....	"	.76	.84	1.30	1.75	2.40	3.70	5.50	6.50	7.50	10.00	....
" " Countersunk .....	"	.92	1.10	....	2.00	3.50	....	....	....	....	....	....

Bushings reducing one size only, up to and including  $2\frac{1}{2}$ -inch, are malleable and are listed among malleable fittings.

## SPECIAL PLUGS

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Left-Hand .....	each	....	....	.04	.06	.08	.09	.11	.15	....	....	....	....	....	....	....
Tapped for Air Cock .....	"	....	....	.12	.15	.20	.25	.30	....	....	....	....	....	....	....	....
Solid .....	"	.04	.04	.04	.06	.08	.09	.11	.15	.27	.38	.57	.63	1.00	1.35	1.80

## RADIATOR BUSHINGS AND PLUGS

BUSHING

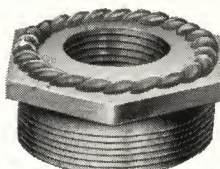


Fig. 9642D

ECCENTRIC BUSHING

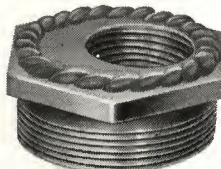


Fig. 9642E

PLUG

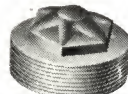


Fig. 9642F

## BUSHINGS

Size .....	inches	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$2$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$3$	$3\frac{1}{2}$	$4$	$4\frac{1}{2}$	$5$	$6$
Price .....	each	.09	.11	.14	.14	.14	.14	.21	.21	.21	.21	.21	.21	.21

## ECCENTRIC BUSHINGS

Size .....	inches	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$2$	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$3$	$3\frac{1}{2}$	$4$	$4\frac{1}{2}$	$5$	$6$
Price .....	each	.22	.22	.25	.25	.25	.27	.27	.27	.27	.27	.27	.27	.27

## PLUGS

Size .....	inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price .....	each	.06	.08	.10	.14	.20



## FITTINGS

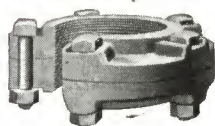
MALLEABLE IRON PIPE SADDLES  
SINGLE STRAP DOUBLE STRAPFLANGE UNIONS  
STANDARD

Fig. 6854A

## EXTRA HEAVY

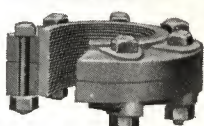


Fig. 6854B

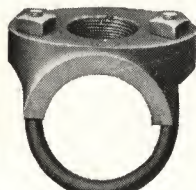


Fig. 6854C

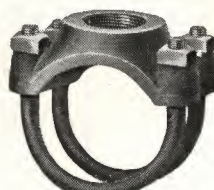


Fig. 6854D

## STANDARD FLANGE UNIONS

For Working Pressures up to 125 Pounds

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2
Diameter of Flanges.....inches	2 5/8	3 1/8	3 5/8	4	4 5/8	5 1/2	6 1/8	6 3/4	7 1/2	8 1/8	8 3/4
No. of Bolts in Each.....	3	3	3	4	4	4	4	4	4	5	5
Price, Black.....each	.40	.46	.52	.64	.78	1.00	1.25	1.50	1.80	2.10	2.70
" Galvanized. ".....	.80	.92	1.04	1.28	1.56	2.00	2.50	3.00	3.60	4.20	5.40

Size.....inches	5	6	7	8	9	10	12	14	15	16	....
Diameter of Flanges.....inches	9 5/8	11	12 1/4	13 1/2	14 3/8	15 1/4	18	22	22	23	....
No. of Bolts in Each.....	5	6	7	7	8	10	12	14	14	16	....
Price, Black.....each	3.15	3.95	5.50	7.00	10.00	11.50	16.00	28.00	35.00	60.00	....
" Galvanized. ".....	6.30	7.90	11.00	14.00	20.00	23.00	32.00	56.00	70.00	120.00	....

## EXTRA HEAVY FLANGE UNIONS

For Working Pressures up to 250 Pounds

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Diameter of Flanges.....inches	3	3 1/4	3 5/8	4 1/8	4 5/8	5 3/8	6	6 3/4
No. of Bolts in Each.....	3	4	4	4	4	5	5	6
Price.....each	.60	.70	.80	1.00	1.15	1.50	1.90	2.25

Size.....inches	3 1/2	4	4 1/2	5	6	7	8	....
Diameter of Flanges.....inches	7 1/8	8	8 3/4	9 3/8	10 3/4	12 1/8	13 3/8	....
No. of Bolts in Each.....	6	7	8	8	9	10	10	....
Price.....each	2.70	3.15	4.00	4.75	6.00	8.25	10.50	....

## MALLEABLE IRON PIPE SADDLES, SINGLE STRAP

Size of Pipe.....inches	2	2 1/2	3
Tapped for Pipe.....inches	1 to 1 1/2	1 to 2	1 to 2
Price.....each	.75	1.00	1.00

## MALLEABLE IRON PIPE SADDLES, DOUBLE STRAP

Size of Pipe.....inches	2	2 1/2	3	3 1/2	4	4 1/2	5
Tapped for Pipe.....inches	1 1/2 to 1 1/2	3/4 to 1 1/2	3/4 to 2	3/4 to 2	3/4 to 2	3/4 to 2	3/4 to 2
Price.....each	1.00	1.25	1.25	1.40	1.50	2.50	2.75

Size of Pipe.....inches	5	6	6	7	8	9	10
Tapped for Pipe.....inches	2 1/2 and 3	3/4 to 2	2 1/2 to 4	1 to 4	1 to 4	1 1/2 to 4	1 1/2 to 4
Price.....each	2.75	2.75	5.75	6.50	6.50	8.50	10.00

Size of Pipe.....inches	10	12	12	15	16	....	....
Tapped for Pipe.....inches	4 1/2 to 6	1 1/2 to 4	4 1/2 to 6	3 to 6	3 to 6	....	....
Price.....each	10.00	14.00	14.00	22.00	25.00	....	....

## CAST IRON FLANGES

## NOT FACED

COMMON



Fig. 652A

FLOOR



Fig. 652B

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
$\frac{3}{8}$ x3	*.10	3 x $6\frac{1}{2}$	.50	5 x10	1.50	7x15	4.00
$\frac{1}{2}$ x $3\frac{1}{2}$	*.15	2 x 7	.62	6 x10	1.50	8x15	4.00
$\frac{3}{4}$ x $3\frac{1}{2}$	*.15	$2\frac{1}{2}$ x 7	.62	$4\frac{1}{2}$ x11	1.75	9x15	4.00
$\frac{3}{4}$ x4	.22	3 x 7	.62	5 x11	1.75	8x16	5.00
1 x4	*.16	3 x $7\frac{1}{2}$	.75	6 x11	1.75	9x16	5.00
$1\frac{1}{4}$ x4	*.16	2 x 8	.90	5 x12	2.20	10x16	5.00
$1\frac{1}{4}$ x $4\frac{1}{2}$	.25	$2\frac{1}{2}$ x 8	.90	6 x12	2.20	9x17	5.75
$1\frac{1}{2}$ x $4\frac{1}{2}$	*.22	3 x 8	.90	7 x12	2.20	10x17	5.75
$\frac{3}{4}$ x5	.30	$3\frac{1}{2}$ x 8	.90	5 x12 $\frac{1}{2}$	2.20	10x18	7.00
1 x5	.30	4 x 8	.90	6 x12 $\frac{1}{2}$	2.20	12x18	7.00
$1\frac{1}{4}$ x5	.30	$3\frac{1}{2}$ x $8\frac{1}{2}$	1.00	7 x12 $\frac{1}{2}$	2.20	10x19	7.50
$1\frac{1}{2}$ x5	.30	4 x $8\frac{1}{2}$	1.00	6 x13	2.80	12x19	7.50
2 x5 $\frac{1}{2}$	*.35	3 x 9	1.15	7 x13	2.80	12x20	8.50
1 x6	.42	$3\frac{1}{2}$ x 9	1.15	8 x13	2.80	14x20	8.50
$1\frac{1}{4}$ x6	.40	4 x 9	1.15	6 x13 $\frac{1}{2}$	2.80	14x21	9.50
$1\frac{1}{2}$ x6	.40	$4\frac{1}{2}$ x 9	1.15	7 x13 $\frac{1}{2}$	2.80	15x21	9.50
2 x6	.42	$4\frac{1}{2}$ x $9\frac{1}{4}$	1.25	8 x13 $\frac{1}{2}$	2.80	15x22 $\frac{1}{4}$	14.00
$2\frac{1}{2}$ x6	.42	$3\frac{1}{2}$ x10	1.50	6 x14	3.25	16x23 $\frac{1}{2}$	18.00
2 x6 $\frac{1}{2}$	.50	4 x10	1.50	7 x14	3.25	.....	.....
$2\frac{1}{2}$ x6 $\frac{1}{2}$	.50	$4\frac{1}{2}$ x10	1.50	8 x14	3.25	.....	.....

Those marked with an \* are floor flanges, drilled for screw.

The above is considered a complete list. Other sizes made to order.

## CIRCULAR FLANGES



Fig. 652C

Size of Pipe.....inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4	5
Diameter of Flanges.....inches	6	7	8	9	9	11
Size of Pipe.....inches	6	7	8	9	10	12
Diameter of Flanges.....inches	12	13	14	17	18	20

These flanges being made to order it is always necessary to give the circle they are to fit.

Patterns for circular flanges are so constructed that the bosses for pipe can be put on any size flange on the table above, thereby increasing the variety of sizes and diameters to meet the circumstance.

Prices on application.

## CAST IRON BRANCH TEES

No. 1



Fig. 3274A

No. 3



Fig. 3274B

No. 2



Fig. 3274C

No. 4



Fig. 3274D

No. of Branches	$\frac{3}{4}$ -INCH							1-INCH							$1\frac{1}{4}$ -INCH							$1\frac{1}{2}$ -INCH							2-INCH						
	$2\frac{1}{4}$ Inches Center to Center							$2\frac{1}{2}$ Inches Center to Center							3 Inches Center to Center							$3\frac{1}{2}$ Inches Center to Center							$4\frac{1}{2}$ Inches Center to Center						
	SIZE OF RUN, INCHES																																		
	$\frac{3}{4}$ -1 $1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$1\frac{1}{2}$ $1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$1\frac{1}{2}$ $2$	$2\frac{1}{2}$	3	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$																	
INSIDE DIAMETER, INCHES																																			
$\frac{3}{4}$ -1 $1\frac{1}{4}$ $1\frac{1}{2}$																																			

All tees are tapped at both ends, irrespective of back or side outlets.

Back or side outlets charged as additional front outlets.

In ordering, be sure to state size of run required. When not ordered otherwise, all openings will be tapped right-hand.

Branch tees for circulation are tapped right-hand, all openings.

Branch tees for box coils are tapped left-hand in branches and right-hand in back outlets.



## HOOK AND EXPANSION PLATES, ETC.

CAST IRON  
HOOK PLATE

Fig. 710A

EXPANSION  
HOOK PLATE

Fig. 710B

SINGLE  
HOOK

Fig. 710C

BEAM  
HOOK

Fig. 710D

LAUNDRY  
COIL STAND

Fig. 710E

### CAST IRON HOOK PLATES AND SINGLE HOOKS

Number of Hooks.....	1	2	3	4	5	6
For 1- in. Pipe, 2½ in. between Centers.. each	.09	.18	.23	.26	.32	.38
“ 1¼ “ “ 3 “ “ “ “	.10	.21	.27	.32	.41	.52
“ 1½ “ “ 3½ “ “ “ “	.15	.28	.43	.58	.72	.88
“ 2 “ “ 4½ “ “ “ “	.22	.43	.65	.90	1.15	1.35

### EXPANSION HOOK PLATES

Number of Hooks.....	1	2	3	4	5	6
For 1- in. Pipe, 2½ in. between Centers.. each	.15	.25	.35	.50	.60	.70
“ 1¼ “ “ 3 “ “ “ “	.17	.27	.40	.60	.70	.80
“ 1½ “ “ 3½ “ “ “ “	.25	.40	.60	.75	.90	1.00
“ 2 “ “ 4½ “ “ “ “	...	.60	.85	1.00	1.35	1.55

When hook plates are ordered, specifying a greater number of hooks than listed above, we will send two; for instance, an order calling for 2—2x8 hook plates we will send four 2x4.

### BEAM HOOKS, LONG SHANK

Size .....	½	¾	1	1¼	1½	2	2½	3
Price .....	.13	.15	.18	.22	.24	.35	.65	.90

### LAUNDRY COIL STANDS

With Movable Hook Plates for 1-inch Pipe

Pipes High.....	4	6	8	10
Price .....	2.00	2.75	3.50	4.25

Extra hooks, complete, for 1-inch pipe, 6 cents; 1¼-inch, 8 cents; 1½-inch, 10 cents; and 2-inch, 15 cents each, net.



## PIPE HANGERS, ETC.

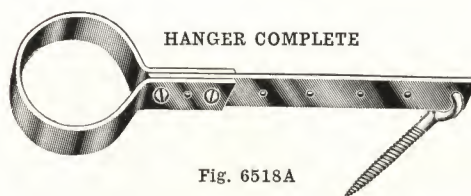


Fig. 6518A



Fig. 6518B

## ADJUSTABLE STEEL HANGERS

Size of Pipe.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Adjustable Length, 2 to 10 inches....each	.18	.18	.18	.20	.22	.25	.30	.35
“ “ 10 “ 16 “ .... “	.21	.21	.21	.23	.25	.28	.33	.38
“ “ 16 “ 22 “ .... “	.24	.24	.24	.26	.28	.31	.36	.41
Rings with Bolts..... “	.08	.08	.09	.10	.12	.14	.16	.18
Size of Pipe.....inches	3 1/2	4	4 1/2	5	6	7	8	....
Adjustable Length, 2 to 10 inches....each	.37	.45	.50	.58	.70	1.05	1.20	....
“ “ 10 “ 16 “ .... “	.40	.48	.53	.61	.74	1.10	1.25	....
“ “ 16 “ 22 “ .... “	.43	.51	.56	.64	.79	1.15	1.30	....
Rings with Bolts..... “	.20	.25	.30	.35	*.90	*1.10	*1.30	....

\*Extra heavy.

Hanger screws: No. 1, small, 5 cents; No. 2, large, 10 cents, each.

## PERFORATED EXTENSION BARS

Number .....	00	0	1	2	3	4	5
Width .....	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2
Gauge of Steel..... “	14	14	14	12	10	10	8
Price.....per foot	.08	.08	.08	.09	.10	.20	.28

## GAS PIPE HOOK



Fig. 6518C

## TINNED STRAP



Fig. 6518D

## SOLID RING PIPE HANGER

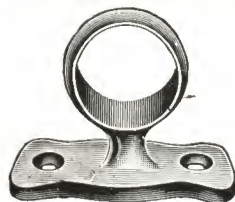


Fig. 6518E

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Gas Pipe Hooks.....per 100	.45	.55	.65	.80	1.00	1.30	1.60	2.00
“ Tinned Straps.....per pound	.30	.30	.30	.30	.30	.30	.30	.30
“ Cast Iron Solid Ring Pipe Hangers, Black....per 100	....	5.00	5.00	5.80	7.75	10.00	14.00	22.00
“ “ “ “ “ “ Galv..... “	....	6.50	6.50	7.00	9.00	12.00	16.00	25.00



## FLOOR AND CEILING PLATES

## PLAIN CAST IRON

## CHICAGO PATENT

FLOOR PLATE WITH GROOVE



Fig. 5361A

CEILING PLATE



Fig. 5361B

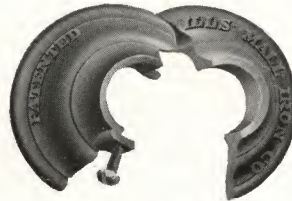


Fig. 5361C

## FLOOR AND CEILING PLATES

Size .....	inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8
Price, Floor Plates.....	each	.06	.06	.08	.11	.14	.16	.24	.30	.35	.42	.60	.75	1.75
" Ceiling " .....	"	.11	.13	.16	.18	.23	.27	.36	.50	.55	.68	.95	1.25	....

## CHICAGO PATENT DETACHABLE

Size .....	inches	$\frac{3}{4}$	1	$1\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price.....	each	.22	.28	.32	.40	.50	.65	.90	1.00	1.20

## B &amp; C

NEW MODEL



Fig. 5361D

No. 3  
FLOOR AND CEILING PLATE  
WITH SCREW SET

Fig. 5361E

No. 6  
FLOOR PLATE

Fig. 5361F

## NEW MODEL

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, Black .....	each	.14	.15	.16	.17	.20	.22	.25	.30	.50
" Nickel-plated ..	"	.25	.26	.27	.28	.32	.35	.38	.45	.65
Size .....	inches	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	....
Price, Black .....	each	.65	.80	1.00	1.25	1.50	1.75	2.00	2.25	....
" Nickel-plated ..	"	.80	1.00	1.25	1.50	1.75	2.00	2.25	2.50	....

## B &amp; C

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Black .....	each	.14	.15	.16	.17	.20	.22	.25	.30	.50	.65
" Nickel-plated .....	"	.25	.26	.27	.28	.32	.35	.38	.45	.65	.80
" Cast Brass, Nos. 3, 6 and 7 ..	"	1.00	1.00	1.00	1.20	1.30	1.60	1.80	2.00	2.50	3.00
" Brass, Pol. or N. P., No. 10...	"	.60	.60	.62	.65	.72	.80	.85	1.00	1.50	1.80
Size .....	inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	....
Price, Black .....	each	.80	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	....
" Nickel-plated .....	"	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	....
" Cast Brass, Nos. 3, 6 and 7 ..	"	4.00	5.00	6.00	7.00	9.00	10.00	12.00	14.00	16.00	....

No. 10, sizes  $\frac{3}{8}$  to 3-inch only.

## “EUREKA” COMBINATION CIRCULATION FITTINGS

(Patented)

### COMBINATION FITTING FOR SINGLE-PIPE HOT WATER WORK

No. 1  
FULL VIEW



Fig. 108A

No. 2  
SECTIONAL VIEW



Fig. 108B

The “Eureka” Combination Circulation Fitting is designed to take the place of the usual ells, tees and nipples commonly employed in taking branches from the main flow pipe of a single-pipe hot water system.

The hot water is taken from the top of the fitting, and passing through the radiators, is returned through an especially devised channel in the fitting in such a manner that it flows to the cool strata in the lower side of the pipe.

Besides saving the necessary labor expended in making up the fittings in the old-fashioned way, and the decreased liability of leaky joints, the friction is reduced to a minimum and a thoroughly practical method of construction is obtained.

The general appearance and neatness of a single-pipe hot water system with this fitting applied is vastly superior to the old method of construction.

The use of the “Eureka” Combination Circulation Fitting removes any objection heretofore urged against the one-pipe system, and in addition effects an actual saving in the cost of material and labor for this style of work.

These fittings require only half the number and half the labor of installation in main flow pipe compared with common fittings.

Size of Main Inches	Size of Outlets Inches	Length Over All Inches	Center to Center of Outlets Inches	Price Each
2	$\frac{3}{4}$ to $1\frac{1}{2}$	$8\frac{1}{8}$	$4\frac{1}{8}$	.90
$2\frac{1}{2}$	$\frac{3}{4}$ to 2	$8\frac{1}{8}$	$4\frac{1}{8}$	1.30
3	$\frac{3}{4}$ to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	1.50
3	$2\frac{1}{2}$	$10\frac{5}{8}$	$5\frac{3}{4}$	1.90
$3\frac{1}{2}$	$\frac{3}{4}$ to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	1.90
4	$\frac{3}{4}$ to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	2.20
4	$2\frac{1}{2}$	$11\frac{1}{2}$	$5\frac{7}{8}$	3.20
$4\frac{1}{2}$	1 to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	3.20
$4\frac{1}{2}$	$2\frac{1}{2}$	$11\frac{1}{2}$	$5\frac{7}{8}$	3.70
5	1 to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	3.70
5	$2\frac{1}{2}$	$11\frac{1}{2}$	$5\frac{7}{8}$	4.90
6	1 to 2	$9\frac{1}{4}$	$4\frac{1}{2}$	4.90
6	$2\frac{1}{2}$ and 3	$11\frac{5}{8}$	$5\frac{7}{8}$	6.50
7	$1\frac{1}{4}$ to $3\frac{1}{2}$	$12\frac{7}{8}$	$6\frac{3}{8}$	8.50
8	$1\frac{1}{4}$ “ $3\frac{1}{4}$	$12\frac{7}{8}$	$6\frac{3}{8}$	15 00



## CIRCULATING TEES AND SPRINKLER HEADS

### THE TILLMAN CIRCULATING TEES

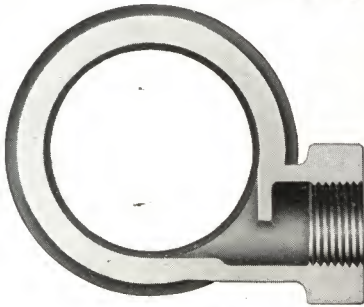


Fig. 10284A

A perfect distributing connection devised for adjusting and evening the circulation of the water throughout the system, which is accomplished with the most precision and accuracy. The entire absence of numerous 45° ells, nipples, plugged tees and other paraphernalia, ordinarily used in making up branch pipe connections to mains, means a large saving of time, hard labor and material, and the saving of dollars in cost of installation.

Heretofore most of the trouble experienced in hot water heating was caused by the inability of the steam fitter to control the flow of water and to connect radiator and riser branch pipes to the mains in such a manner as to prevent "short circuits" and cause hot water to circulate to the end of the mains.

When used in connection with the Tillman Pressure Generator, they will circulate water into the last radiator off the end of the mains, as well as intermediate radiators, practically at boiler temperature, the loss of heat in transmission being from 2 to 4 degrees. Substantially the same accurate, uniform and positive result is secured in every installation of the Tillman Hot Water Heating System.

Because of their eccentric construction and the depending wall (cast on the inner perimeter of the tee), they pass water from the bottom of the mains, without forcing it downward, without producing friction and without retarding the natural, easy flow of water through mains and into branch pipes.

When it is remembered that the hottest portion of the water flows along the upper half of the mains and branch pipes, it is apparent that they render it impossible for stagnant water to accumulate in the mains and piping system, and thus cause slow circulation and large fuel consumption.

It is also plainly apparent that the total area and carrying capacity of the mains and entire piping system will be utilized, because the whole body of water is moving uniformly in one positive direction.

NOTE.—When using Tillman Circulating Tees, the flow main should be sufficiently elevated above the return main to permit return branch pipes to pass under the flow main. The best method, however, is to extend the return main immediately below the flow main, leaving sufficient space between the mains for installation. This makes a very handsome job and saves much time.

Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each	Size Inches	Price Each
1 1/4 x 1 1/4 x 3/4	.40	2 x 2 x 3/4	.55	2 1/2 x 2 1/2 x 3/4	.80	3 x 3 x 3/4	1.10
1 1/2 x 1 1/2 x 3/4	.44	2 x 2 x 1	.55	2 1/2 x 2 1/2 x 1	.80	3 x 3 x 1	1.10
1 3/4 x 1 3/4 x 1	.44	2 x 2 x 1 1/4	.55	2 1/2 x 2 1/2 x 1 1/4	.80	3 x 3 x 1 1/4	1.10

#### OPEN HEAD

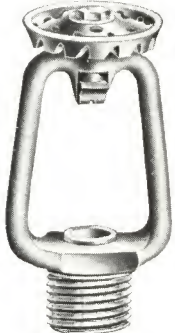


Fig. 10284B

#### SPRINKLER HEADS

For Automatic Fire Protection

Size, Iron Pipe Connection.....inches	1/2
Price, Open or Closed Heads.....each	1.50

When ordering, state if standard or high temperature heads are wanted.

#### CLOSED HEAD

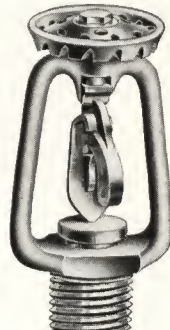


Fig. 10284C



## LONG SWEEP CAST IRON FITTINGS

No. 1 ELBOW

No. 2 DOUBLE BRANCH ELBOW

No. 3 TEE

No. 4 CROSS

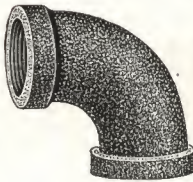


Fig. 722A

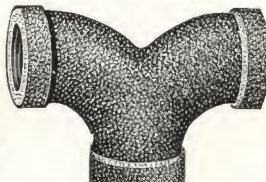


Fig. 722B



Fig. 722C



Fig. 722D

### No. 1 ELBOWS

Size..... inches	1	1¼	1½	2	2½	3	3½	4
Price, Black..... each	.32	.40	.55	.80	1.20	2.25	3.25	3.50
“ Galvanized..... “	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
“ Reducing..... “	.48	.60	.83	1.20	1.80	3.38	4.88	5.25
Size..... inches	4½	5	6	7	8	9	10	12
Price, Black..... each	5.50	6.50	8.75	13.00	17.00	25.50	30.00	40.00
“ Galvanized..... “	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
“ Reducing..... “	8.25	9.75	13.13	19.50	25.50	38.25	45.00	60.00

### No. 2 DOUBLE BRANCH ELBOWS

No. 2 elbows take double list of No. 1.

### No. 3 TEES

Size..... inches	1	1¼	1½	2	2½	3	3½	4
Price, Black..... each	.48	.60	.82	1.20	1.80	3.40	4.90	5.25
“ Galvanized..... “	.96	1.20	1.64	2.40	3.60	6.80	9.80	10.50
“ Reducing..... “	.72	.90	1.23	1.80	2.70	5.10	7.35	7.88
Size..... inches	4½	5	6	7	8	9	10	12
Price, Black..... each	8.25	9.75	13.25	19.50	25.50	38.00	45.00	60.00
“ Galvanized..... “	16.50	19.50	26.50	39.00	51.00	76.00	90.00	120.00
“ Reducing..... “	12.38	14.63	19.88	29.25	38.25	57.00	67.50	90.00

### No. 4 CROSSES

Size..... inches	1	1¼	1½	2	2½	3	3½	4
Price, Black..... each	.85	1.10	1.50	2.15	3.20	6.00	8.75	9.50
“ Galvanized..... “	1.70	2.20	3.00	4.30	6.40	12.00	17.50	19.00
“ Reducing..... “	....	1.65	2.25	3.23	4.80	9.00	13.13	14.25
Size..... inches	5	6	7	8	9	10	12	....
Price, Black..... each	17.50	24.00	35.00	45.00	68.00	80.00	107.00	....
“ Galvanized..... “	35.00	48.00	70.00	90.00	136.00	160.00	214.00	....
“ Reducing..... “	26.25	36.00	52.50	67.50	102.00	120.00	160.50	....

### REDUCING SIZES—LONG SWEEP FITTINGS

Nos. 1, 2 and 3 reducing will be made by bushing in the sand.

#### No. 4 CROSSES

#### No. 12 STRAIGHT BACK TEES

2½x2½x1½x1½	5x5x3x3	2 x2 x1	2½x2 x2	3 x2½x2	5x5 x3	8x8x6
3 x3 x1½x1½	6x6x4x4	2 x1½x1½	2½x2 x1½	2½x2½x3	4x4 x5	8x8x4
4 x4 x2½x2½	8x8x4x4	2 x1½x1	3 x3 x2	3½x3 x2	4x3½x5	....
5 x5 x4 x4	8x8x6x6	2½x2½x2	3 x3 x1½	4 x4 x2½	6x6 x4	....
.....	.....	2½x2½x1½	3 x3 x1½	3½x3 x4	5x4 x6	....
.....	.....	2½x2½x1	3 x2½x2½	3 x3 x4	4x4 x6	....

## LONG SWEEP CAST IRON FITTINGS

STRAIGHT BACK TEE



Fig. 723A

ELBOW  
FLANGED ON ONE END

Fig. 723B

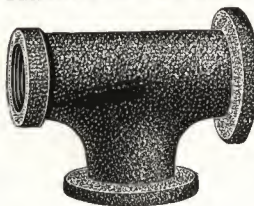
TEE  
FLANGED ON TWO ENDS

Fig. 723C

## STRAIGHT BACK TEES

Size.....inches	1	1¼	1½	2	2½	3	3½	4
Price.....each	.64	.80	1.10	1.60	2.40	4.50	6.50	7.00
“ Reducing .....	.96	1.20	1.65	2.40	3.60	6.75	9.75	10.50
Size.....inches	4½	5	6	7	8	9	10	12
Price.....each	11.00	13.00	17.50	26.00	34.00	51.00	60.00	80.00
“ Reducing .....	16.50	19.50	26.25	39.00	51.00	76.50	90.00	120.00

## ELBOWS, TEES, AND CROSSES

With Flanged Ends

Size.....inches	2	2½	3	3½	4	5	6	7	8	10	12
Elbows, Flanged One End.....each	5.00	5.50	6.00	6.50	7.50	10.00	14.00	25.00	30.00	40.00	53.00
“ “ Both Ends .....	6.00	6.75	7.50	8.50	10.00	12.50	17.50	30.00	35.00	50.00	65.00
Tees, “ One or Two Ends. “	8.00	9.00	10.00	11.00	12.00	15.00	22.00	40.00	45.00	80.00	105.00
“ “ Three Ends .... “	9.00	10.00	11.50	13.00	15.00	18.00	26.00	45.00	50.00	90.00	120.00
Crosses, “ One or Two Ends. “	11.00	12.50	13.50	15.00	17.00	22.00	30.00	55.00	65.00	100.00	132.00
“ “ Three or Four Ends “	12.00	13.50	15.00	17.00	20.00	25.00	35.00	60.00	70.00	120.00	157.00

Above prices are for fittings FACED AND DRILLED.

## BASE ELBOWS AND TEES

BASE ELBOW



Fig. 723D

BASE TEE

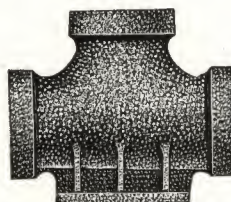


Fig. 723E

## BASE ELBOWS—SCREWED

Size.....inches	3	4	4½	5	6
Price, Black, Round or Square Base .....	8.00	11.00	14.00	15.00	18.00
Size.....inches	7	8	9	10	12
Price, Black, Round or Square Base.....each	25.00	32.00	40.00	50.00	65.00

Base tees made to order only.



## EXTRA HEAVY CAST IRON FITTINGS

For Steam Working Pressures up to 250 Pounds

Tested to Hydraulic Pressures Corresponding to the  
above Working Pressures

ELBOW



Fig. 7975A

45° ELBOW



Fig. 7975B

TEE



Fig. 7975C

CROSS



Fig. 7975D

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Elbows .....each	.25	.30	.35	.45	.60	.75	1.25	2.00	2.75
“ “ Reducing..... “	....	.40	.45	.55	.75	.95	1.55	2.50	....
“ “ 45°..... “	.35	.40	.44	.55	.70	.90	1.50	2.50	3.50
“ Tees..... “	.40	.45	.55	.70	.90	1.15	1.80	3.00	4.25
“ “ Reducing..... “	....	.60	.70	.90	1.15	1.40	2.25	3.75	5.30
“ Crosses..... “	....	....	.70	.90	1.20	1.50	2.50	4.00	5.50
“ “Y” Bends..... “	....	....	....	1.35	1.80	2.25	3.75	6.00	....

Size.....inches	4	4 1/2	5	6	7	8	10	12	....
Price, Elbows .....each	3.50	4.25	5.50	8.00	12.00	17.00	28.00	40.00	....
“ “ Reducing..... “	4.40	....	6.80	....	....	....	....	....	....
“ “ 45°..... “	4.50	5.50	6.75	9.75	14.50	21.00	34.00	48.00	....
“ Tees..... “	5.50	6.75	8.25	12.00	18.00	25.00	42.00	60.00	....
“ “ Reducing..... “	6.85	8.50	10.25	15.00	22.50	31.00	52.00	75.00	....
“ Crosses..... “	7.00	8.50	11.00	16.00	24.00	34.00	56.00	80.00	....
“ “Y” Bends..... “	11.00	....	....	....	....	....	....	....	....

Galvanized extra heavy fittings, double above list.

The radius of these fittings is longer than the ordinary, thereby reducing friction.

We do not recommend the use of screwed fittings above 6-inch; for larger sizes, flanged are more suitable.

Special reducing sizes can be made to order by bushing in the sand, and will be charged for extra, according to quantity.



## CAST IRON FLANGED FITTINGS

### STANDARD AND EXTRA HEAVY

Standard and extra heavy reducing elbows carry same dimensions center to face as regular elbows of largest straight size.

Standard and extra heavy tees, crosses and laterals, reducing on run only, carry same dimensions face to face as largest straight size.

Where long radius fittings are specified, it has reference only to elbows which are made in two center to face dimensions and to be known as elbows and long radius elbows, the latter being used only when so specified.

All standard weight fittings are guaranteed for 125 pounds working pressure and extra heavy fittings for 250 pounds working pressure.

All extra heavy fittings and flanges have a raised surface of  $\frac{1}{16}$  inch high inside of bolt holes for gaskets.

Standard weight fittings and flanges are plain faced.

Bolt holes are  $\frac{1}{8}$  inch larger in diameter than bolts. Bolt holes to straddle center line.

Size of all fittings scheduled indicates inside diameter of ports.

The face to face dimensions of reducers, either straight or eccentric, for all pressures shall be the same face to face as given in table of dimensions.

Square head bolts with hexagonal nuts are recommended.

Twin elbows, whether straight or reducing, carry same dimensions center to face and face to face as regular straight size elbows and tees.

Side outlet elbows and side outlet tees, whether straight or reducing sizes, carry the same dimensions center to face and face to face as regular tees having same reductions.

Bull head tees or tees increasing on outlet have same center to face and face to face dimensions as a straight fitting of the size of the outlet.

Tees and crosses 16 inches and down, reducing on the outlet, use the same dimensions as straight sizes of the larger port.

Y's are special and are made to suit conditions.

Double sweep tees are not made reducing on the run.

## STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

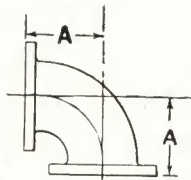
## ELBOWS

STANDARD



Fig. 8768A

DIMENSIONS

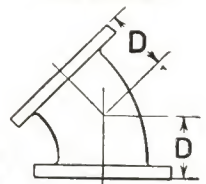


45°



Fig. 8768B

DIMENSIONS



"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	CENTER TO FACE INCHES		PRICE, EACH			
				STANDARD		45°	
		"A" Standard	"D" 45°	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	4 1/2	3 3/4	2	3.00	3.60	3.30	3.90
1 1/2	5	4	2 1/4	3.00	3.60	3.30	3.90
2	6	4 1/2	2 1/2	3.00	3.60	3.30	3.90
2 1/2	7	5	3	3.15	3.75	3.50	4.10
3	7 1/2	5 1/2	3	3.45	4.15	3.80	4.50
3 1/2	8 1/2	6	3 1/2	4.05	4.90	4.50	5.35
4	9	6 1/2	4	4.50	5.50	5.00	6.00
4 1/2	9 1/4	7	4	5.50	6.50	6.00	7.00
5	10	7 1/2	4 1/2	6.25	7.25	6.90	7.90
6	11	8	5	7.60	8.90	8.35	9.65
7	12 1/2	8 1/2	5 1/2	10.50	12.00	11.00	12.50
8	13 1/2	9	5 1/2	12.00	13.60	12.60	14.20
9	15	10	6	17.00	19.25	17.75	20.00
10	16	11	6 1/2	19.00	21.70	20.00	22.70
12	19	12	7 1/2	28.00	31.00	29.50	32.50
14	21	14	7 1/2	41.50	45.25	41.50	45.25
15	22 1/4	14 1/2	8	47.00	51.50	47.00	51.50
16	23 1/2	15	8	54.50	59.50	54.50	59.50
18	25	16 1/2	8 1/2	71.00	77.00	71.00	77.00
20	27 1/2	18	9 1/2	90.00	97.00	90.00	97.00
22	29 1/2	20	10	113.00	122.00	113.00	122.00
24	32	22	11	140.00	150.00	140.00	150.00

Furnished faced only, unless otherwise ordered.

Larger sizes made to order. Prices on application.

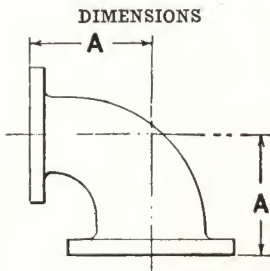
## STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

## REDUCING TAPER ELBOWS



Fig. 8817A



"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	PRICE, EACH		Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	PRICE, EACH	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x 1½	7½ x 5	5½	6.90	7.60	8x 5	13½ x 10	9	24.00	25.60
3 x 2	7½ x 6	5½	6.90	7.60	8x 6	13½ x 11	9	24.00	25.60
3 x 2½	7½ x 7	5½	6.90	7.60	8x 7	13½ x 12½	9	24.00	25.60
3½ x 2	8½ x 6	6	8.10	8.95	9x 6	15 x 11	10	34.00	36.25
3½ x 2½	8½ x 7	6	8.10	8.95	9x 8	15 x 13½	10	34.00	36.25
3½ x 3	8½ x 7½	6	8.10	8.95	10x 5	16 x 10	11	38.00	40.70
4 x 2	9 x 6	6½	9.00	10.00	10x 6	16 x 11	11	38.00	40.70
4 x 2½	9 x 7	6½	9.00	10.00	10x 7	16 x 12½	11	38.00	40.70
4 x 3	9 x 7½	6½	9.00	10.00	10x 8	16 x 13½	11	38.00	40.70
5 x 2½	10 x 7	7½	12.50	13.50	10x 9	16 x 15	11	38.00	40.70
5 x 3	10 x 7½	7½	12.50	13.50	12x 6	19 x 11	12	56.00	59.00
5 x 4	10 x 9	7½	12.50	13.50	12x 7	19 x 12½	12	56.00	59.00
6 x 2½	11 x 7	8	15.25	16.55	12x 8	19 x 13½	12	56.00	59.00
6 x 3	11 x 7½	8	15.25	16.55	12x 10	19 x 16	12	56.00	59.00
6 x 3½	11 x 8½	8	15.25	16.55	14x 10	21 x 16	14	70.00	73.75
6 x 4	11 x 9	8	15.25	16.55	14x 12	21 x 19	14	70.00	73.75
6 x 5	11 x 10	8	15.25	16.55	15x 10	22¼ x 16	14½	80.00	84.50
7 x 5	12½ x 10	8½	21.00	22.50	15x 12	22¼ x 19	14½	80.00	84.50
7 x 6	12½ x 11	8½	21.00	22.50	16x 12	23½ x 19	15	90.00	95.00
8 x 3½	13½ x 8½	9	24.00	25.60	16x 14	23½ x 21	15	90.00	95.00
8 x 4	13½ x 9	9	24.00	25.60	16x 15	23½ x 22¼	15	90.00	95.00

Elbows not listed above, made to order at special price. Flanged fittings will be furnished faced only, unless otherwise ordered.



# STANDARD FLANGED FITTINGS

For Steam Working Pressures up to 125 Pounds

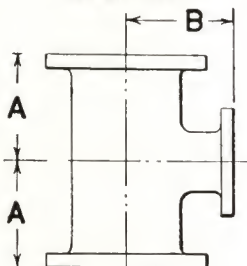
## TEES

STRAIGHT



Fig. 8826A

DIMENSIONS



REDUCING



Fig. 8826B

New Standard—Effective January 1, 1915

Recommended by the American Society of Mechanical Engineers, National Association of Master Steam and Hot Water Fitters and Manufacturers' Committee.

Size Inches	Diameter of Flanges Inches	*Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
					STRAIGHT		†REDUCING	
			**"A"	**"B"	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1¼	4½	7½	3¾	3¾	4.35	5.25	.....	.....
1½	5	8	4	4	4.35	5.25	5.00	5.90
2	6	9	4½	4½	4.35	5.25	5.00	5.90
2½	7	10	5	5	4.55	5.45	5.25	6.15
3	7½	11	5½	5½	5.00	6.10	5.75	6.85
3½	8½	12	6	6	5.85	7.10	6.75	8.00
4	9	13	6½	6½	6.50	8.00	7.50	9.00
4½	9¼	14	7	7	8.00	9.50	9.25	10.75
5	10	15	7½	7½	9.10	10.60	10.50	12.00
6	11	16	8	8	11.00	12.95	12.65	14.60
7	12½	17	8½	8½	15.25	17.50	17.50	19.75
8	13½	18	9	9	17.40	19.80	20.00	22.40
9	15	20	10	10	24.65	28.00	28.50	31.85
10	16	22	11	11	27.50	31.50	31.50	35.50
12	19	24	12	12	40.50	45.00	46.50	51.00
14	21	28	14	14	60.00	65.50	69.00	74.50
15	22¼	29	14½	14½	68.00	74.75	78.00	84.75
16	23½	30	15	15	79.00	86.50	91.00	98.50
18	25	33	16½	16½	103.00	112.00	118.00	127.00
20	27½	36	18	18	130.00	140.00	150.00	160.00
22	29½	40	20	20	164.00	177.00	189.00	202.00
24	32	44	22	22	203.00	218.00	233.00	248.00

\*All reducing tees, 16 inches and smaller, take the same center to face dimensions as straight size tees. All tees reducing on the run only, take the same dimensions, center to face, as the largest straight size. Tees, sizes 18 inches and larger, reducing on the outlet, are made in two lengths, depending on the size of outlet. For variations from above dimensions in 10-inch size and larger with small outlet, see dimensions and templates for drilling. Furnished faced only, unless otherwise specified. Larger sizes made to order. Prices on application.

Bullheads or tees having outlet larger than the run, will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x16-inch tee will be governed by the dimensions of the 16-inch long body tee (upper table), namely, 15 inches center to face of all openings and 30 inches face to face.

†Reducing in run or branch.

## STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

## CROSSES

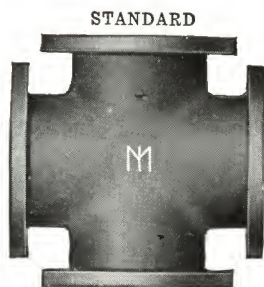


Fig. 8915A

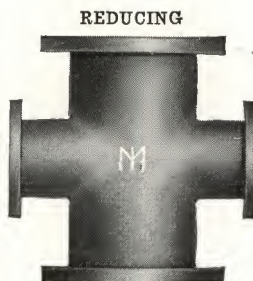
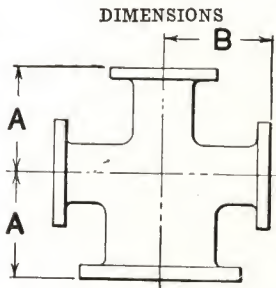


Fig. 8915B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
					STANDARD		REDUCING	
			"A" Standard	"B" Reducing	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	4 1/2	7 1/2	3 3/4	3 3/4	6.75	7.95	.....	.....
1 1/2	5	8	4	4	6.75	7.95	.....	.....
2	6	9	4 1/2	4 1/2	6.75	7.95	7.75	8.95
2 1/2	7	10	5	5	6.95	8.15	8.00	9.20
3	7 1/2	11	5 1/2	5 1/2	7.65	9.05	8.75	10.15
3 1/2	8 1/2	12	6	6	9.00	10.70	10.35	12.05
4	9	13	6 1/2	6 1/2	10.00	12.00	11.50	13.50
4 1/2	9 1/4	14	7	7	12.00	14.00	13.75	15.75
5	10	15	7 1/2	7 1/2	13.75	15.75	15.75	17.75
6	11	16	8	8	16.75	19.25	19.25	21.75
7	12 1/2	17	8 1/2	8 1/2	23.00	26.00	26.50	29.50
8	13 1/2	18	9	9	26.50	29.75	30.50	33.75
9	15	20	10	10	37.50	42.00	43.00	47.50
10	16	22	11	11	42.00	47.50	48.00	53.50
12	19	24	12	12	61.50	67.50	71.00	77.00
14	21	28	14	14	91.00	98.50	105.00	112.50
15	22 1/4	29	14 1/2	14 1/2	103.00	112.00	118.00	127.00
16	23 1/2	30	15	15	120.00	130.00	138.00	148.00
18	25	33	16 1/2	16 1/2	157.00	169.00	180.00	192.00
20	27 1/2	36	18	18	198.00	212.00	228.00	242.00
22	29 1/2	40	20	20	248.00	266.00	285.00	303.00
24	32	44	22	22	310.00	330.00	355.00	375.00

Furnished faced only, unless otherwise ordered.

Larger sizes made to order. Prices on application. Reducing crosses made to order only.

## STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

## Y BRANCHES



Fig. 9355A

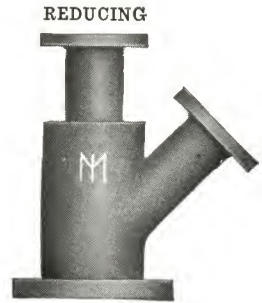
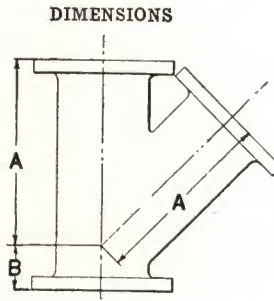


Fig. 9355B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face of Run Inches	Center to Face of Run or Outlet "A" Inches	PRICE, EACH			
				STANDARD		*REDUCING	
				With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	4 1/2	8	6 1/4	6.75	7.95	.....	.....
1 1/2	5	9	7	6.75	7.95	.....	.....
2	6	10 1/2	8	6.75	7.95	7.75	8.95
2 1/2	7	12	9 1/2	6.95	8.15	8.00	9.20
3	7 1/2	13	10	7.65	9.05	8.75	10.15
3 1/2	8 1/2	14 1/2	11 1/2	9.00	10.70	10.35	12.05
4	9	15	12	10.00	12.00	11.50	13.50
4 1/2	9 1/4	15 1/2	12 1/2	12.00	14.00	13.75	15.75
5	10	17	13 1/2	13.75	15.75	15.75	17.75
6	11	18	14 1/2	16.75	19.25	19.25	21.75
7	12 1/2	20 1/2	16 1/2	23.00	26.00	26.50	29.50
8	13 1/2	22	17 1/2	26.50	29.75	30.50	33.75
9	15	24	19 1/2	37.50	42.00	43.00	47.50
10	16	25 1/2	20 1/2	42.00	47.50	48.00	53.50
12	19	30	24 1/2	61.50	67.50	71.00	77.00
14	21	33	27	91.00	98.50	105.00	112.50
15	22 1/4	34 1/2	28 1/2	103.00	112.00	118.00	127.00
16	23 1/2	36 1/2	30	120.00	130.00	138.00	148.00
18	25	39	32	157.00	169.00	180.00	192.00
20	27 1/2	43	35	198.00	212.00	228.00	242.00
22	29 1/2	46	37 1/2	248.00	266.00	285.00	303.00
24	32	49 1/2	40 1/2	310.00	330.00	355.00	375.00

Flanged fittings will always be furnished faced only, unless otherwise ordered.

\*Reducing in run or branch.

Larger sizes made to order. Prices on application.

Dimensions of reducing Y branches on application.



# STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

## TAPER REDUCERS

REGULAR

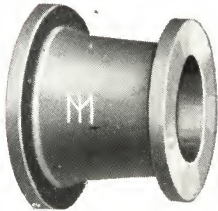
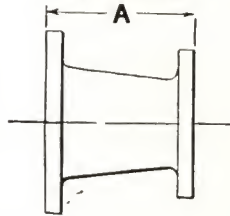


Fig. 9458A

DIMENSIONS



ECCENTRIC

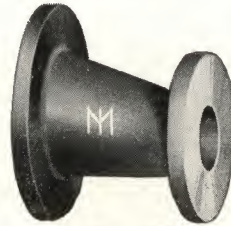


Fig. 9458B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "A" Inches	PRICE, EACH		Size Inches	Diameter of Flanges Inches	Face to Face "A" Inches	PRICE, EACH	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x2	7½ x 6	6	6.90	7.60	10x 4	16 x 9	12	38.00	40.70
3½x2½	8½ x 7	6½	8.10	8.95	10x 5	16 x10	12	38.00	40.70
4 x2	9 x 6	7	9.00	10.00	10x 6	16 x11	12	38.00	40.70
4 x2½	9 x 7	7	9.00	10.00	10x 8	16 x13½	12	38.00	40.70
4 x3	9 x 7½	7	9.00	10.00	12x 5	19 x10	14	56.00	59.00
5 x2	10 x 6	8	12.50	13.50	12x 6	19 x11	14	56.00	59.00
5 x2½	10 x 7	8	12.50	13.50	12x 8	19 x13½	14	56.00	59.00
5 x3	10 x 7½	8	12.50	13.50	12x10	19 x16	14	56.00	59.00
5 x4	10 x 9	8	12.50	13.50	14x 6	21 x11	16	70.00	73.75
6 x3	11 x 7½	9	15.25	16.55	14x 8	21 x13½	16	70.00	73.75
6 x3½	11 x 8½	9	15.25	16.55	14x10	21 x16	16	70.00	73.75
6 x4	11 x 9	9	15.25	16.55	14x12	21 x19	16	70.00	73.75
6 x5	11 x10	9	15.25	16.55	15x 8	22¼x13½	17	80.00	84.50
7 x3	12½x 7½	10	21.00	22.50	15x10	22¼x16	17	80.00	84.50
7 x4	12½x 9	10	21.00	22.50	15x12	22¼x19	17	80.00	84.50
7 x5	12½x10	10	21.00	22.50	15x14	22¼x21	17	80.00	84.50
7 x6	12½x11	10	21.00	22.50	16x 8	23½x13½	18	90.00	95.00
8 x3	13½x 7½	11	24.00	25.60	16x10	23½x16	18	90.00	95.00
8 x4	13½x 9	11	24.00	25.60	16x12	23½x19	18	90.00	95.00
8 x5	13½x10	11	24.00	25.60	16x14	23½x21	18	90.00	95.00
8 x6	13½x11	11	24.00	25.60	.....	.....	..	.....	.....

Flanged taper reducers as above or of any other dimensions, will be made to order.  
Flanged eccentric taper reducers, prices on application.

## STANDARD FLANGED FITTINGS

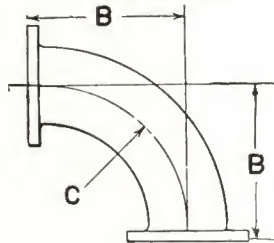
For 125 Pounds Steam Working Pressure

LONG RADIUS ELBOW



Fig. 8876A

DIMENSIONS



BASE ELBOW  
ROUND FLANGE

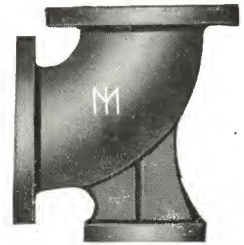


Fig. 8876B

"The 1915 U. S. Standard"

LONG RADIUS ELBOWS

BASE ELBOWS

Size Inches	Center to Face Inches	Radius Inches	Diam. of Flanges Inches	PRICE, EACH		Size Inches	Center to Face Inches	Center to Face of Round or Square Base Inches	Diam. of *Base Flange Inches	PRICE, EACH		Facing and Drill- ing Base Flange
				With Faced Flanges	With Faced and Drilled Flanges					Faced Except Base Flange	Faced and Drilled Except Base Flange	
4	9	7 $\frac{3}{8}$	9	7.50	9.00	4	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6	9.00	10.00	3.00
4 $\frac{1}{2}$	9 $\frac{1}{2}$	7 $\frac{3}{4}$	9 $\frac{1}{4}$	9.25	10.75	4 $\frac{1}{2}$	7	6 $\frac{3}{4}$	6	11.00	12.00	3.00
5	10 $\frac{1}{4}$	8 $\frac{1}{2}$	10	10.50	12.00	5	7 $\frac{1}{2}$	7	7	12.50	13.50	3.50
6	11 $\frac{1}{2}$	9 $\frac{5}{8}$	11	12.65	14.60	6	8	7 $\frac{1}{2}$	7	15.25	16.55	3.50
7	12 $\frac{3}{4}$	10 $\frac{7}{8}$	12 $\frac{1}{2}$	17.50	19.75	7	8 $\frac{1}{2}$	8 $\frac{1}{4}$	7	21.00	22.50	3.50
8	14	12	13 $\frac{1}{2}$	20.00	22.40	8	9	8 $\frac{3}{4}$	9	24.00	25.60	5.00
9	15 $\frac{1}{4}$	13	15	28.50	31.85	9	10	9 $\frac{1}{2}$	9	34.00	36.25	5.00
10	16 $\frac{1}{2}$	14 $\frac{1}{8}$	16	31.50	35.50	10	11	10	9	38.00	40.70	5.00
12	19	16 $\frac{1}{2}$	19	46.50	51.00	12	12	10 $\frac{1}{2}$	11	56.00	59.00	7.50
14	21 $\frac{1}{2}$	18 $\frac{7}{8}$	21	69.00	74.50	14	14	13 $\frac{1}{2}$	11	70.00	73.75	7.50
15	22 $\frac{3}{4}$	20	22 $\frac{1}{4}$	78.00	84.75	15	14 $\frac{1}{2}$	14	11	80.00	84.50	7.50
16	24	21 $\frac{1}{4}$	23 $\frac{1}{2}$	91.00	98.50	16	15	14 $\frac{3}{4}$	11	90.00	95.00	7.50

\*The measurement across the flat edge of square base flange is the same as the diameter of the round base flange.

Long radius elbows of different dimensions from above, made to order at a special price.  
Prices given on flanged base elbows do not include facing or drilling of base flanges.

BASE TEES

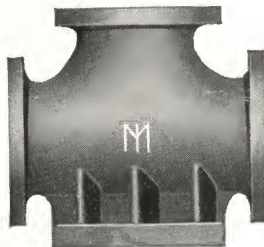


Fig. 8876C

Base tees made to order. Prices on application.

# STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

## SINGLE SWEEP TEES



Fig. 8827A

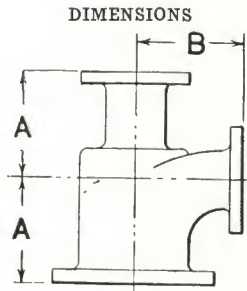


Fig. 8827B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
			"A" Standard	"B" Reducing	STANDARD		*REDUCING	
					With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6	9	4½	4½	5.00	5.90	5.75	6.65
2½	7	10	5	5	5.25	6.15	6.00	6.90
3	7½	11	5½	5½	5.75	6.85	6.60	7.70
3½	8½	12	6	6	6.75	8.00	7.75	9.00
4	9	13	6½	6½	7.50	9.00	8.65	10.15
4½	9¼	14	7	7	9.25	10.75	10.60	12.10
5	10	15	7½	7½	10.50	12.00	12.00	13.50
6	11	16	8	8	12.65	14.60	14.50	16.45
7	12½	17	8½	8½	17.50	19.75	20.00	22.25
8	13½	18	9	9	20.00	22.40	23.00	25.40
9	15	20	10	10	28.50	31.85	32.75	36.10
10	16	22	11	11	31.50	35.50	36.00	40.00
12	19	24	12	12	46.50	51.00	53.50	58.00
14	21	28	14	14	69.00	74.50	79.00	84.50
15	22¼	29	14½	14½	78.00	84.75	90.00	96.75
16	23½	30	15	15	91.00	98.50	105.00	112.50
18	25	33	16½	16½	118.00	127.00	135.00	144.00
20	27½	36	18	18	150.00	160.00	173.00	183.00
22	29½	40	20	20	189.00	202.00	217.00	230.00
24	32	44	22	22	233.00	248.00	268.00	283.00

Furnished faced only, unless otherwise ordered.

\*Reducing in run or branch.

Larger sizes made to order. Prices on application. Reducing single sweep tees made to order only. Single sweep tees with the side openings larger than the run not made.

Bullheads or tees having outlet larger than the run, will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x16-inch tee will be governed by the dimensions of the 16-inch long body tee, namely, 15 inches center to face of all openings and 30 inches face to face.



## STANDARD FLANGED FITTINGS

For 125 Pounds Steam Working Pressure

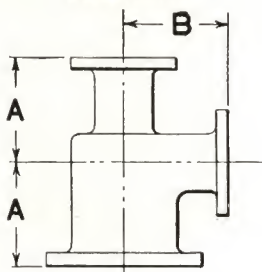
### DOUBLE SWEEP TEES

STANDARD



Fig. 8833A

DIMENSIONS



REDUCING



Fig. 8833B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "A A" Inches	CENTER TO FACE INCHES		PRICE, EACH			
			"A" Standard	"B" Reducing	STANDARD		*REDUCING	
					With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6	9	4½	4½	5.00	5.90	5.75	6.65
2½	7	10	5	5	5.25	6.15	6.00	6.90
3	7½	11	5½	5½	5.75	6.85	6.60	7.70
3½	8½	12	6	6	6.75	8.00	7.75	9.00
4	9	13	6½	6½	7.50	9.00	8.65	10.15
4½	9¼	14	7	7	9.25	10.75	10.60	12.10
5	10	15	7½	7½	10.50	12.00	12.00	13.50
6	11	16	8	8	12.65	14.60	14.50	16.45
7	12½	17	8½	8½	17.50	19.75	20.00	22.25
8	13½	18	9	9	20.00	22.40	23.00	25.40
9	15	20	10	10	28.50	31.85	32.75	36.10
10	16	22	11	11	31.50	35.50	36.00	40.00
12	19	24	12	12	46.50	51.00	53.50	58.00
14	21	28	14	14	69.00	74.50	79.00	84.50
15	22¼	29	14½	14½	78.00	84.75	90.00	96.75
16	23½	30	15	15	91.00	98.50	105.00	112.50
18	25	33	16½	16½	118.00	127.00	135.00	144.00
20	27½	36	18	18	150.00	160.00	173.00	183.00
22	29½	40	20	20	189.00	202.00	217.00	230.00
24	32	44	22	22	233.00	248.00	268.00	283.00

Furnished faced only, unless otherwise ordered.

\*Reducing in branch only.

Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, we will alter patterns (which will be expensive) and charge at a special price. We can only increase branch (outlet) within a reasonable limit, which must be regulated by our patterns.

## STANDARD COMPANION FLANGES

For 125 Pounds Steam Working Pressure

BACK VIEW, SHOWING HUB



Fig. 606A

SMOOTH FACE



Fig. 606B

BLIND FLANGE  
16-INCH AND SMALLER

Fig. 606C

"The 1915 U. S. Standard"

Size Inches	CAST IRON		MALLEABLE IRON		STEEL		FORGED STEEL		BLIND FLANGES	
	PRICE, EACH		PRICE, EACH		PRICE, EACH		PRICE, EACH		PRICE, EACH	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1 x 4	.55	.80	1.10	1.60	.70	1.00	.....	.....	....	....
1¼ x 4½	.60	.85	1.20	1.70	.75	1.05	.....	.....	....	....
1½ x 5	.65	.90	1.30	1.80	.80	1.10	.....	.....	....	....
2 x 6	.75	1.00	1.50	2.00	.95	1.25	10.40	11.00	1.15	1.40
2½ x 7	.85	1.10	1.70	2.20	1.05	1.35	11.80	13.00	1.30	1.55
3 x 7½	.95	1.25	1.90	2.50	1.20	1.55	13.70	15.00	1.40	1.70
3½ x 8½	1.20	1.55	2.40	3.10	1.50	1.95	17.60	19.00	1.80	2.15
4 x 9	1.35	1.80	2.70	3.60	1.70	2.25	18.30	20.00	2.00	2.45
4½ x 9¼	1.45	1.90	2.90	3.80	1.80	2.35	20.30	22.00	2.20	2.65
5 x 10	1.60	2.05	3.20	4.10	2.00	2.55	22.30	24.00	2.40	2.85
6 x 11	2.00	2.50	4.00	5.00	2.50	3.10	25.40	27.00	3.00	3.50
7 x 12½	2.65	3.25	5.30	6.50	3.30	4.05	27.20	32.00	4.00	4.60
8 x 13½	3.10	3.80	6.20	7.60	3.90	4.75	32.00	35.00	4.60	5.30
9 x 15	3.85	4.65	7.70	9.30	4.80	5.80	37.00	40.00	5.75	6.55
10 x 16	4.50	5.50	9.00	11.00	5.65	6.85	45.00	48.00	6.75	7.75
12 x 19	6.50	7.65	13.00	15.30	8.15	9.55	56.00	60.00	9.75	10.90
14 x 21	9.00	10.35	18.00	20.70	11.25	13.00	75.50	80.00	13.50	14.85
15 x 21	11.50	13.20	23.00	26.40	14.50	16.50	.....	.....	17.00	18.70
15 x 22¼	11.50	13.20	23.00	26.40	14.50	16.50	.....	.....	17.00	18.70
16 x 23½	13.50	15.30	27.00	30.60	17.00	19.00	.....	.....	20.00	21.80
18 x 25	16.00	18.00	32.00	36.00	20.00	22.50	.....	.....	24.00	26.00
20 x 27½	19.00	21.50	38.00	43.00	24.00	27.00	.....	.....	28.00	30.50
22 x 29½	22.00	25.00	44.00	50.00	27.50	31.00	.....	.....	33.00	36.00
24 x 32	27.00	30.50	54.00	61.00	34.00	38.00	.....	.....	40.00	43.50

# STANDARD REDUCING COMPANION FLANGES WITH RIBS

FOR STANDARD FLANGED VALVES AND FITTINGS

For 125 Pounds Steam Working Pressure

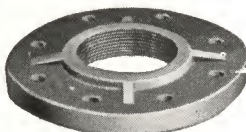


Fig. 9487A

Prices on Eccentric Flanges  
Double List Given Below

These flanges, used in connection with straight or reducing fittings, enable us to fill orders for reduced sizes more promptly. Customers who desire fittings reduced in this manner will please specify "Reduce by Flanges if Necessary."

They will always be of the same thickness as the regular companion flanges of corresponding outside diameter, and drilled to the template corresponding to the outside diameter, unless otherwise ordered.

In ordering reducing companion flanges, always give the screwed or reduced size first, then the outside diameter of flange wanted; for instance, if a reducing flange is wanted to connect a 6-inch pipe to a 9-inch flanged valve or fitting having a 15-inch O. D. flange, order a 6x15-inch reducing flange. This will clearly avoid the confusion often caused by orders incorrectly calling for a 9x6 or 6x9-inch flange.

"The 1915 U. S. Standard"

Size Inches	PRICE, EACH		Size Inches	PRICE, EACH		Size Inches	PRICE, EACH	
	Faced	Faced and Drilled		Faced	Faced and Drilled		Faced	Faced and Drilled
1½ x 7	1.45	1.70	4 x 12½	4.40	5.00	9 x 21	15.00	16.35
2 x 7	1.45	1.70	4½ x 12½	4.40	5.00	10 x 21	15.00	16.35
1½ x 7½	1.55	1.85	5 x 12½	4.40	5.00	12 x 21	15.00	16.35
2 x 7½	1.55	1.85	6 x 12½	4.40	5.00	8 x 22¼	19.00	20.70
2½ x 7½	1.55	1.85	2 x 13½	5.10	5.80	10 x 22¼	19.00	20.70
2 x 8½	2.00	2.35	2½ x 13½	5.10	5.80	12 x 22¼	19.00	20.70
2½ x 8½	2.00	2.35	3 x 13½	5.10	5.80	14 x 22¼	19.00	20.70
3 x 8½	2.00	2.35	4 x 13½	5.10	5.80	10 x 23½	22.00	23.80
2 x 9	2.20	2.65	5 x 13½	5.10	5.80	12 x 23½	22.00	23.80
2½ x 9	2.20	2.65	6 x 13½	5.10	5.80	14 x 23½	22.00	23.80
3 x 9	2.20	2.65	7 x 13½	5.10	5.80	15 x 23½	22.00	23.80
3½ x 9	2.20	2.65	6 x 15	6.35	7.15	12 x 25	26.50	28.50
2½ x 9¼	2.40	2.85	7 x 15	6.35	7.15	14 x 25	26.50	28.50
3 x 9¼	2.40	2.85	8 x 15	6.35	7.15	15 x 25	26.50	28.50
3½ x 9¼	2.40	2.85	2½ x 16	7.45	8.45	16 x 25	26.50	28.50
4 x 9¼	2.40	2.85	3 x 16	7.45	8.45	14 x 27½	31.00	33.50
2 x 10	2.65	3.10	3½ x 16	7.45	8.45	15 x 27½	31.00	33.50
2½ x 10	2.65	3.10	4 x 16	7.45	8.45	16 x 27½	31.00	33.50
3 x 10	2.65	3.10	5 x 16	7.45	8.45	18 x 27½	31.00	33.50
3½ x 10	2.65	3.10	6 x 16	7.45	8.45	15 x 29½	36.00	39.00
4 x 10	2.65	3.10	7 x 16	7.45	8.45	16 x 29½	36.00	39.00
4½ x 10	2.65	3.10	8 x 16	7.45	8.45	18 x 29½	36.00	39.00
2 x 11	3.30	3.80	9 x 16	7.45	8.45	20 x 29½	36.00	39.00
2½ x 11	3.30	3.80	6 x 19	10.75	11.90	14 x 32	44.00	47.50
3 x 11	3.30	3.80	7 x 19	10.75	11.90	16 x 32	44.00	47.50
3½ x 11	3.30	3.80	8 x 19	10.75	11.90	18 x 32	44.00	47.50
4 x 11	3.30	3.80	9 x 19	10.75	11.90	20 x 32	44.00	47.50
4½ x 11	3.30	3.80	10 x 19	10.75	11.90	.....	.....	.....
5 x 11	3.30	3.80	8 x 21	15.00	16.35	.....	.....	.....

Furnished smooth faced and not drilled, unless otherwise specified.



## TEMPLATES FOR DRILLING STANDARD AND LOW PRESSURE FLANGED VALVES AND FITTINGS

### SIZES $\frac{3}{4}$ -INCH TO 48-INCH, INCLUSIVE

These drilling templates are in multiples of four, so that fittings may be made to face in any quarter, and bolt holes straddle the center line. They can be drilled to any other template, if so desired.

Bolt holes are drilled  $\frac{1}{8}$  inch larger than nominal diameter of bolts, except that brass valves and fittings, 6-inch and smaller, have holes  $\frac{1}{16}$  inch larger than the bolts.

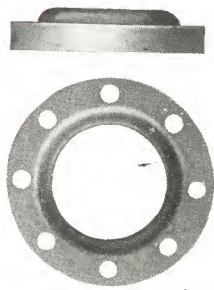


Fig. 648A.

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Thickness of Flanges Inches	Bolt Circle Inches	Number of Bolts	Size of Bolts Inches	Bolt Lengths Inches
$\frac{3}{4}$	$3\frac{1}{2}$	$\frac{7}{16}$	$2\frac{1}{2}$	4	$\frac{3}{8}$	$1\frac{1}{2}$
1	4	$\frac{7}{16}$	3	4	$\frac{7}{16}$	$1\frac{1}{2}$
$1\frac{1}{4}$	$4\frac{1}{2}$	$\frac{1}{2}$	$3\frac{3}{8}$	4	$\frac{7}{16}$	$1\frac{1}{2}$
$1\frac{1}{2}$	5	$\frac{9}{16}$	$3\frac{7}{8}$	4	$\frac{1}{2}$	$1\frac{3}{4}$
2	6	$\frac{5}{8}$	$4\frac{3}{4}$	4	$\frac{5}{8}$	2
$2\frac{1}{2}$	7	$\frac{11}{16}$	$5\frac{1}{2}$	4	$\frac{5}{8}$	$2\frac{1}{4}$
3	$7\frac{1}{2}$	$\frac{3}{4}$	6	4	$\frac{5}{8}$	$2\frac{1}{2}$
$3\frac{1}{2}$	$8\frac{1}{2}$	$\frac{13}{16}$	7	4	$\frac{5}{8}$	$2\frac{1}{2}$
4	9	$\frac{15}{16}$	$7\frac{1}{2}$	8	$\frac{5}{8}$	$2\frac{3}{4}$
$4\frac{1}{2}$	$9\frac{1}{4}$	$\frac{15}{16}$	$7\frac{3}{4}$	8	$\frac{3}{4}$	3
5	10	$\frac{15}{16}$	$8\frac{1}{2}$	8	$\frac{3}{4}$	3
6	11	1	$9\frac{1}{2}$	8	$\frac{3}{4}$	3
7	$12\frac{1}{2}$	$\frac{11}{16}$	$10\frac{3}{4}$	8	$\frac{3}{4}$	3
8	$13\frac{1}{2}$	$\frac{11}{8}$	$11\frac{3}{4}$	8	$\frac{3}{4}$	$3\frac{1}{4}$
9	15	$\frac{11}{8}$	$13\frac{1}{4}$	12	$\frac{3}{4}$	$3\frac{1}{4}$
10	16	$\frac{13}{16}$	$14\frac{1}{4}$	12	$\frac{7}{8}$	$3\frac{1}{2}$
12	19	$\frac{11}{4}$	17	12	$\frac{7}{8}$	$3\frac{3}{4}$
14	21	$\frac{13}{8}$	$18\frac{3}{4}$	12	1	$4\frac{1}{4}$
15	$22\frac{1}{4}$	$\frac{13}{8}$	20	16	1	$4\frac{1}{4}$
16	$23\frac{1}{2}$	$\frac{17}{16}$	$21\frac{1}{4}$	16	1	$4\frac{1}{4}$
18	25	$\frac{19}{16}$	$22\frac{3}{4}$	16	$1\frac{1}{8}$	$4\frac{3}{4}$
20	$27\frac{1}{2}$	$\frac{11}{8}$	25	20	$\frac{11}{8}$	5
22	$29\frac{1}{2}$	$\frac{13}{8}$	$27\frac{1}{4}$	20	$\frac{11}{4}$	$5\frac{1}{2}$
24	32	$\frac{17}{8}$	$29\frac{1}{2}$	20	$\frac{11}{4}$	$5\frac{1}{2}$
26	$34\frac{1}{4}$	2	$31\frac{3}{4}$	24	$\frac{11}{4}$	$5\frac{3}{4}$
28	$36\frac{1}{2}$	$\frac{21}{16}$	34	28	$\frac{11}{4}$	6
30	$38\frac{3}{4}$	$\frac{21}{8}$	36	28	$\frac{13}{8}$	$6\frac{1}{4}$
32	$41\frac{3}{4}$	$\frac{21}{4}$	$38\frac{1}{2}$	28	$\frac{11}{2}$	$6\frac{1}{2}$
34	$43\frac{3}{4}$	$\frac{25}{16}$	$40\frac{1}{2}$	32	$\frac{11}{2}$	$6\frac{1}{2}$
36	46	$\frac{23}{8}$	$42\frac{3}{4}$	32	$\frac{11}{2}$	7
38	$48\frac{3}{4}$	$\frac{23}{8}$	$45\frac{1}{4}$	32	$\frac{15}{8}$	7
40	$50\frac{3}{4}$	$\frac{21}{2}$	$47\frac{1}{4}$	36	$\frac{15}{8}$	7
42	53	$\frac{25}{8}$	$49\frac{1}{2}$	36	$\frac{15}{8}$	$7\frac{1}{2}$
44	$55\frac{1}{4}$	$\frac{25}{8}$	$51\frac{3}{4}$	40	$\frac{15}{8}$	$7\frac{1}{2}$
46	$57\frac{1}{4}$	$\frac{211}{16}$	$53\frac{3}{4}$	40	$\frac{15}{8}$	$7\frac{1}{2}$
48	$59\frac{1}{2}$	$\frac{23}{4}$	56	44	$\frac{15}{8}$	8

# **STANDARD CAST IRON REDUCING FLANGED FITTINGS**

## **LIST OF SIZES CARRIED IN STOCK REDUCING FLANGED TEES**

2 1/2 x 2 1/2 x 2	5 x 4 x 3	8 x 8 x 3 1/2	10 x 8 x 7
2 1/2 x 2 1/2 x 1 1/2	5 x 4 x 2 1/2	8 x 8 x 3	10 x 8 x 6
2 1/2 x 2 x 1 1/2	5 x 4 x 2	8 x 8 x 2 1/2	10 x 8 x 5
	5 x 3 1/2 x 4	8 x 8 x 2	10 x 8 x 4
3 x 3 x 2 1/2	5 x 3 x 3 1/2	8 x 7 x 8	10 x 7 x 7
3 x 3 x 2	5 x 3 x 3	8 x 6 x 8	10 x 6 x 8
3 x 3 x 1 1/2	4 x 4 x 5	8 x 5 x 8	10 x 6 x 6
3 x 3 x 1 1/4		8 x 4 x 8	8 x 8 x 10
3 x 2 1/2 x 3	6 x 6 x 5	8 x 3 1/2 x 8	8 x 6 x 10
3 x 2 1/2 x 2 1/2	6 x 6 x 4 1/2	8 x 3 x 8	6 x 6 x 10
3 x 2 1/2 x 2	6 x 6 x 4	8 x 7 x 7	
3 x 2 x 2 1/2	6 x 6 x 3 1/2	8 x 7 x 6	12 x 12 x 10
3 x 2 x 3	6 x 6 x 3	8 x 7 x 5	12 x 12 x 9
2 1/2 x 2 1/2 x 3	6 x 6 x 2 1/2	8 x 7 x 4	12 x 12 x 8
	6 x 6 x 2	8 x 6 x 6	12 x 12 x 7
3 1/2 x 3 1/2 x 3	6 x 6 x 1 1/2	8 x 6 x 5	12 x 12 x 6
3 1/2 x 3 1/2 x 2 1/2	6 x 5 x 6	8 x 6 x 4	12 x 12 x 5
3 1/2 x 3 1/2 x 2	6 x 4 x 6	8 x 6 x 3	12 x 12 x 4 1/2
3 1/2 x 2 1/2 x 2 1/2	6 x 3 x 6	8 x 5 x 7	12 x 12 x 4
	6 x 2 1/2 x 6	8 x 5 x 6	12 x 12 x 3
4 x 4 x 3 1/2	6 x 2 x 6	8 x 5 x 5	12 x 12 x 2
4 x 4 x 3	6 x 5 x 5	8 x 4 x 6	12 x 10 x 12
4 x 4 x 2 1/2	6 x 5 x 4	8 x 4 x 4	12 x 8 x 12
4 x 4 x 2	6 x 5 x 3	7 x 7 x 8	12 x 6 x 12
4 x 4 x 1 1/2	6 x 5 x 2 1/2	6 x 6 x 8	12 x 4 x 12
4 x 4 x 1 1/4	6 x 4 x 5	5 x 5 x 8	12 x 10 x 10
4 x 3 1/2 x 4	6 x 4 x 4		12 x 10 x 8
4 x 3 x 4	6 x 4 x 3	9 x 9 x 8	12 x 10 x 6
4 x 2 1/2 x 4	6 x 4 x 2 1/2	9 x 9 x 7	12 x 8 x 10
4 x 2 x 4	5 x 5 x 6	9 x 9 x 6	12 x 8 x 8
4 x 3 x 3	5 x 4 x 6	9 x 9 x 5	12 x 8 x 6
4 x 3 x 2 1/2	4 x 4 x 6	9 x 9 x 4	12 x 6 x 8
4 x 3 x 2		9 x 9 x 3	10 x 10 x 12
4 x 2 1/2 x 3	7 x 7 x 6	9 x 9 x 2 1/2	8 x 8 x 12
4 x 2 1/2 x 2 1/2	7 x 7 x 5	9 x 6 x 6	
4 x 2 x 2	7 x 7 x 4		14 x 14 x 12
3 x 3 x 4	7 x 7 x 3 1/2	10 x 10 x 9	14 x 14 x 10
	7 x 7 x 3	10 x 10 x 8	14 x 14 x 8
4 1/2 x 4 1/2 x 4	7 x 7 x 2 1/2	10 x 10 x 7	14 x 14 x 7
4 1/2 x 4 1/2 x 3	7 x 7 x 2	10 x 10 x 6	14 x 14 x 6
4 1/2 x 4 1/2 x 2 1/2	7 x 6 x 7	10 x 10 x 5	14 x 14 x 5
	7 x 5 x 7	10 x 10 x 4 1/2	14 x 12 x 14
5 x 5 x 4	7 x 4 x 7	10 x 10 x 4	14 x 12 x 12
5 x 5 x 3 1/2	7 x 3 x 7	10 x 10 x 3 1/2	14 x 10 x 10
5 x 5 x 3	7 x 6 x 6	10 x 10 x 3	10 x 10 x 14
5 x 5 x 2 1/2	7 x 6 x 5	10 x 10 x 2 1/2	
5 x 5 x 2	6 x 6 x 7	10 x 10 x 2	16 x 16 x 14
5 x 5 x 1 1/2	5 x 5 x 7	10 x 8 x 10	16 x 16 x 12
5 x 5 x 1 1/4		10 x 7 x 10	16 x 16 x 10
5 x 4 x 5	8 x 8 x 7	10 x 6 x 10	16 x 16 x 8
5 x 3 x 5	8 x 8 x 6	10 x 5 x 10	16 x 16 x 7
5 x 2 1/2 x 5	8 x 8 x 5	10 x 4 x 10	16 x 16 x 6
5 x 2 x 5	8 x 8 x 4 1/2	10 x 3 x 10	16 x 12 x 12
5 x 4 x 4	8 x 8 x 4	10 x 8 x 8	12 x 12 x 16

Continued on next page.

**STANDARD CAST IRON FLANGED FITTINGS****REDUCING SINGLE SWEEP FLANGED TEES**

6 x 6 x 5	6 x 6 x 2½	8 x 8 x 3	10 x 10 x 6
6 x 6 x 4	8 x 8 x 6	8 x 6 x 6	10 x 8 x 8
6 x 6 x 3	8 x 8 x 5	8 x 6 x 4	10 x 6 x 6

**REDUCING DOUBLE SWEEP FLANGED TEES**

4 x 4 x 2	6 x 6 x 3	10 x 10 x 6	10 x 10 x 4
6 x 6 x 5	8 x 8 x 6	10 x 10 x 5	.....

**REDUCING FLANGED CROSSES**

4 x 4 x 3 x 3	6 x 6 x 5 x 5	8 x 8 x 5 x 5	8 x 6 x 8 x 6
5 x 5 x 4 x 4	6 x 6 x 4 x 4	8 x 8 x 4 x 4	10 x 10 x 8 x 8
5 x 5 x 3 x 3	6 x 6 x 3 x 3	8 x 8 x 3 x 3	10 x 10 x 6 x 6
5 x 5 x 2½ x 2½	8 x 8 x 6 x 6	8 x 6 x 6 x 6	10 x 10 x 5 x 5

**REDUCING FLANGED LATERALS**

4 x 4 x 2½	8 x 8 x 6	10 x 10 x 6
6 x 6 x 4	8 x 6 x 6	10 x 8 x 8
6 x 6 x 3	8 x 8 x 3	.....
6 x 6 x 2½	10 x 10 x 8	.....

These sizes, as listed above and on opposite page, with special reducing companion flanges, enable us to furnish about every variety of fittings required, except special angles, offsets, etc.

Reducing ribbed flanges are carried in stock, as per table on page 70. These flanges will always be the same thickness as the regular companion flanges of corresponding outside diameter.

The flanges are always drilled to the template corresponding to the outside diameter, unless otherwise ordered.

Customers who desire fittings reduced in this manner will please specify "REDUCE BY FLANGES IF NECESSARY."

Reducing flanged single and double sweep tees, crosses and laterals are made to order only.

**PRICES OF SIZES NOT CARRIED IN STOCK**

Sizes not covered in the list of sizes carried in stock, as given above and on opposite page, will be considered special, and made to order at the following advance in prices, according to the quantity of a size ordered at one time, viz.:

**Add to the Regular List Prices of Reducing Flanged Fittings  
the Percentage Advances Given Below**

Size	One Piece	Two Pieces	Three Pieces	Four Pieces	Five Pieces	Six or More
3½-inch and Smaller	100%	80%	60%	40%	20%	No Advance
4 to 8-inch	50%	40%	30%	20%	10%	" "
9 " 10 "	25%	20%	15%	10%	5%	" "

Sizes 12-inch and larger, will be made to order in quantities of one or more of a size, at the regular list and discount.

Single sweep tees are not made with side openings larger than the run.

Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, patterns can be altered (which will be expensive) and charged at a special price.

On double sweep tees, branch (outlet) can only be increased within a reasonable limit, which must be regulated by patterns the manufacturers have.

Furnished faced only, unless otherwise ordered.

General dimensions and templates for drilling, page 71.



## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

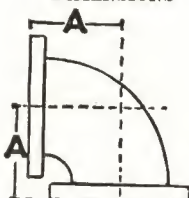
## ELBOWS

STANDARD



Fig. 9510A

DIMENSIONS



45°



Fig. 9510B

DIMENSIONS



"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	CENTER TO FACE INCHES		PRICE, EACH			
				STANDARD		45°	
		"A" Standard	"D" 45°	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	5	4 1/4	2 1/2	4.50	5.40	5.00	5.90
1 1/2	6	4 1/2	2 3/4	4.50	5.40	5.00	5.90
2	6 1/2	5	3	4.50	5.40	5.00	5.90
2 1/2	7 1/2	5 1/2	3 1/2	4.75	5.65	5.25	6.15
3	8 1/4	6	3 1/2	5.15	6.25	5.65	6.75
3 1/2	9	6 1/2	4	6.10	7.35	6.75	8.00
4	10	7	4 1/2	6.75	8.25	7.50	9.00
4 1/2	10 1/2	7 1/2	4 1/2	8.25	9.75	9.00	10.50
5	11	8	5	9.35	10.85	10.35	11.85
6	12 1/2	8 1/2	5 1/2	11.40	13.40	12.50	14.50
7	14	9	6	15.75	18.00	16.50	18.75
8	15	10	6	18.00	20.50	19.00	21.50
9	16 1/4	10 1/2	6 1/2	25.50	28.85	26.75	30.10
10	17 1/2	11 1/2	7	28.50	32.50	30.00	34.00
12	20 1/2	13	8	42.00	46.50	44.00	48.50
14	23	15	8 1/2	62.00	67.50	62.00	67.50
15	24 1/2	15 1/2	9	70.00	77.00	70.00	77.00
16	25 1/2	16 1/2	9 1/2	82.00	90.00	82.00	90.00
18	28	18	10	106.00	115.00	106.00	115.00
20	30 1/2	19 1/2	10 1/2	135.00	145.00	135.00	145.00
22	33	20 1/2	11	170.00	183.00	170.00	183.00
24	36	22 1/2	12	210.00	225.00	210.00	225.00

Furnished faced only, unless otherwise ordered.

Larger sizes made to order. Prices on application.

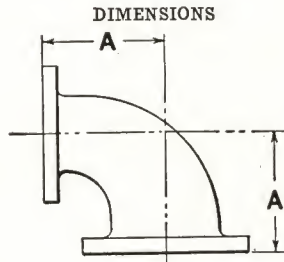
## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Working Pressure

## REDUCING TAPER ELBOWS



Fig. 9532A



"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	PRICE, EACH		Size Inches	Diameter of Flanges Inches	Center to Face "A" Inches	PRICE, EACH	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
2 x 1 1/4	6 1/2 x 5	5	9.00	9.90	7x 5	14 x 11	9	31.50	33.75
2 x 1 1/2	6 1/2 x 6	5	9.00	9.90	7x 6	14 x 12 1/2	9	31.50	33.75
2 1/2 x 1 1/2	7 1/2 x 6	5 1/2	9.50	10.40	8x 4	15 x 10	10	36.00	38.50
2 1/2 x 2	7 1/2 x 6 1/2	5 1/2	9.50	10.40	8x 5	15 x 11	10	36.00	38.50
3 x 1 1/2	8 1/4 x 6	6	10.25	11.35	8x 6	15 x 12 1/2	10	36.00	38.50
3 x 2	8 1/4 x 6 1/2	6	10.25	11.35	8x 7	15 x 14	10	36.00	38.50
3 x 2 1/2	8 1/4 x 7 1/2	6	10.25	11.35	10x 5	17 1/2 x 11	11 1/2	57.00	61.00
3 1/2 x 2	9 x 6 1/2	6 1/2	12.25	13.50	10x 6	17 1/2 x 12 1/2	11 1/2	57.00	61.00
3 1/2 x 2 1/2	9 x 7 1/2	6 1/2	12.25	13.50	10x 8	17 1/2 x 15	11 1/2	57.00	61.00
3 1/2 x 3	9 x 8 1/4	6 1/2	12.25	13.50	12x 7	20 1/2 x 14	13	84.00	88.50
4 x 2	10 x 6 1/2	7	13.50	15.00	12x 8	20 1/2 x 15	13	84.00	88.50
4 x 2 1/2	10 x 7 1/2	7	13.50	15.00	12x 9	20 1/2 x 16 1/4	13	84.00	88.50
4 x 3	10 x 8 1/4	7	13.50	15.00	12x 10	20 1/2 x 17 1/2	13	84.00	88.50
4 x 3 1/2	10 x 9	7	13.50	15.00	14x 6	23 x 12 1/2	15	105.00	110.50
5 x 2 1/2	11 x 7 1/2	8	18.75	20.25	14x 10	23 x 17 1/2	15	105.00	110.50
5 x 3	11 x 8 1/4	8	18.75	20.25	14x 12	23 x 20 1/2	15	105.00	110.50
5 x 4	11 x 10	8	18.75	20.25	15x 6	24 1/2 x 12 1/2	15 1/2	120.00	127.00
6 x 3	12 1/2 x 8 1/4	8 1/2	22.75	24.75	15x 10	24 1/2 x 17 1/2	15 1/2	120.00	127.00
6 x 3 1/2	12 1/2 x 9	8 1/2	22.75	24.75	15x 12	24 1/2 x 20 1/2	15 1/2	120.00	127.00
6 x 4	12 1/2 x 10	8 1/2	22.75	24.75	16x 8	25 1/2 x 15	16 1/2	135.00	143.00
6 x 4 1/2	12 1/2 x 10 1/2	8 1/2	22.75	24.75	16x 10	25 1/2 x 17 1/2	16 1/2	135.00	143.00
6 x 5	12 1/2 x 11	8 1/2	22.75	24.75	16x 12	25 1/2 x 20 1/2	16 1/2	135.00	143.00
7 x 4	14 x 10	9	31.50	33.75	16x 14	25 1/2 x 23	16 1/2	135.00	143.00

## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

### TEES

#### DIMENSIONS



Fig. 9570A

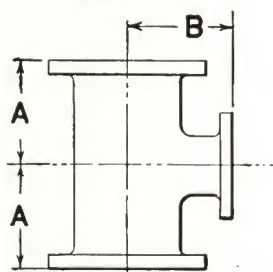


Fig. 9570B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
			"A" Standard	"B" Reducing	STANDARD		*REDUCING	
					With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	5	8 1/2	4 1/4	4 1/4	6.50	7.85	.....	.....
1 1/2	6	9	4 1/2	4 1/2	6.50	7.85	7.50	8.85
2	6 1/2	10	5	5	6.50	7.85	7.50	8.85
2 1/2	7 1/2	11	5 1/2	5 1/2	6.90	8.25	8.00	9.35
3	8 1/4	12	6	6	7.50	9.15	8.60	10.25
3 1/2	9	13	6 1/2	6 1/2	8.90	10.80	10.25	12.15
4	10	14	7	7	9.75	12.00	11.25	13.50
4 1/2	10 1/2	15	7 1/2	7 1/2	12.00	14.25	13.75	16.00
5	11	16	8	8	13.50	15.75	15.50	17.75
6	12 1/2	17	8 1/2	8 1/2	16.50	19.50	19.00	22.00
7	14	18	9	9	23.00	26.35	26.50	29.85
8	15	20	10	10	26.00	29.75	30.00	33.75
9	16 1/4	21	10 1/2	10 1/2	37.00	42.00	42.50	47.50
10	17 1/2	23	11 1/2	11 1/2	41.50	47.50	47.75	53.75
12	20 1/2	26	13	13	61.00	67.75	70.00	76.75
14	23	30	15	15	90.00	98.25	103.50	111.75
15	24 1/2	31	15 1/2	15 1/2	102.00	112.00	117.00	127.00
16	25 1/2	33	16 1/2	16 1/2	119.00	131.00	137.00	149.00
18	28	36	18	18	154.00	168.00	177.00	191.00
20	30 1/2	39	19 1/2	19 1/2	195.00	210.00	225.00	240.00
22	33	41	20 1/2	20 1/2	247.00	267.00	285.00	305.00
24	36	45	22 1/2	22 1/2	305.00	328.00	350.00	373.00

Furnished faced only, unless otherwise ordered.

\*Reducing in run or branch.

Larger sizes made to order. Prices on application.

Bullheads or tees having outlet larger than the run will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x18-inch tee will be governed by the dimensions of the 18-inch long body tee, namely, 18 inches center to face of all openings, and 36 inches face to face.



## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

## CROSSES

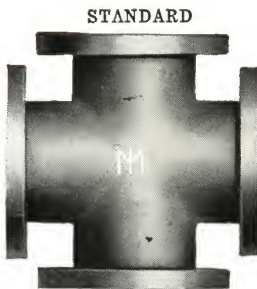
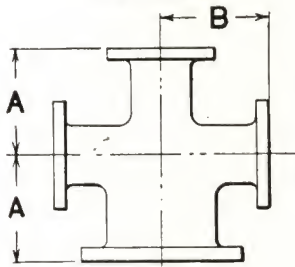


Fig. 9573A

## DIMENSIONS



## REDUCING

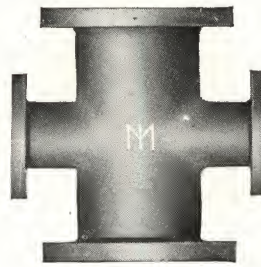


Fig. 9573B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
					STANDARD		REDUCING	
			"A" Standard	"B" Reducing	With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
1 1/4	5	8 1/2	4 1/4	4 1/4	10.00	11.80	.....	.....
1 1/2	6	9	4 1/2	4 1/2	10.00	11.80	.....	.....
2	6 1/2	10	5	5	10.00	11.80	11.50	13.30
2 1/2	7 1/2	11	5 1/2	5 1/2	10.50	12.30	12.00	13.80
3	8 1/4	12	6	6	11.50	13.75	13.25	15.50
3 1/2	9	13	6 1/2	6 1/2	13.50	16.00	15.50	18.00
4	10	14	7	7	15.00	18.00	17.00	20.00
4 1/2	10 1/2	15	7 1/2	7 1/2	18.00	21.00	21.00	24.00
5	11	16	8	8	20.50	23.50	23.50	26.50
6	12 1/2	17	8 1/2	8 1/2	25.00	29.00	29.00	33.00
7	14	18	9	9	35.00	39.50	40.00	44.50
8	15	20	10	10	40.00	45.00	46.00	51.00
9	16 1/4	21	10 1/2	10 1/2	56.00	62.75	65.00	71.75
10	17 1/2	23	11 1/2	11 1/2	63.00	71.00	72.00	80.00
12	20 1/2	26	13	13	92.00	101.00	106.00	115.00
14	23	30	15	15	136.00	147.00	158.00	169.00
15	24 1/2	31	15 1/2	15 1/2	155.00	169.00	177.00	191.00
16	25 1/2	33	16 1/2	16 1/2	180.00	196.00	207.00	223.00
18	28	36	18	18	235.00	253.00	270.00	288.00
20	30 1/2	39	19 1/2	19 1/2	300.00	320.00	345.00	365.00
22	33	41	20 1/2	20 1/2	375.00	401.00	430.00	456.00
24	36	45	22 1/2	22 1/2	465.00	495.00	535.00	565.00

Furnished faced only, unless otherwise ordered.

These fittings can also be furnished faced as follows: Corrugated, male, female, tongued and grooved.

Reducing crosses made to order only.

## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

### Y BRANCHES



Fig. 9577A

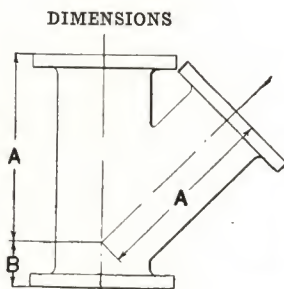


Fig. 9577B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face of Run Inches	Center to Face of Run or Outlet Inches	PRICE, EACH			
				STANDARD		*REDUCING	
				With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6½	11½	9	10.00	11.80	11.50	13.30
2½	7½	13	10½	10.50	12.30	12.00	13.80
3	8¼	14	11	11.50	13.75	13.25	15.50
3½	9	15½	12½	13.50	16.00	15.50	18.00
4	10	16½	13½	15.00	18.00	17.00	20.00
4½	10½	18	14½	18.00	21.00	21.00	24.00
5	11	18½	15	20.50	23.50	23.50	26.50
6	12½	21½	17½	25.00	29.00	29.00	33.00
7	14	23½	19	35.00	39.50	40.00	44.50
8	15	25½	20½	40.00	45.00	46.00	51.00
9	16¼	27½	22½	56.00	62.75	65.00	71.75
10	17½	29½	24	63.00	71.00	72.00	80.00
12	20½	33½	27½	92.00	101.00	106.00	115.00
14	23	37½	31	136.00	147.00	158.00	169.00
15	24½	39½	33	155.00	169.00	177.00	191.00
16	25½	42	34½	180.00	196.00	207.00	223.00
18	28	45½	37½	235.00	253.00	270.00	288.00
20	30½	49	40½	300.00	320.00	345.00	365.00
22	33	53	43½	375.00	401.00	430.00	456.00
24	36	57½	47½	465.00	495.00	535.00	565.00

Furnished faced only, unless otherwise ordered.

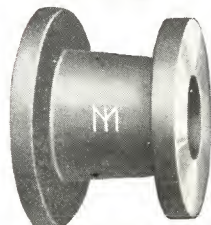
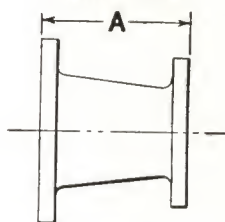
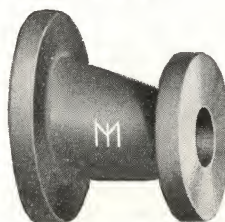
\*Reducing in run or branch.

These fittings can also be furnished faced as follows: Corrugated, male, female, tongued and grooved.

Dimensions of reducing Y branches on application.

**EXTRA HEAVY FLANGED FITTINGS**

For 250 Pounds Steam Working Pressure

**TAPER REDUCERS****REGULAR****Fig. 9578A****DIMENSIONS****ECCENTRIC****Fig. 9578B****"The 1915 U. S. Standard"**

Size Inches	Face to Face "A" Inches	Diameter of Flanges Inches	PRICE, EACH		Size Inches	Face to Face "A" Inches	Diameter of Flanges Inches	PRICE, EACH	
			With Faced Flanges	With Faced and Drilled Flanges				With Faced Flanges	With Faced and Drilled Flanges
3 x 2	6	8 1/4 x 6 1/2	10.25	11.35	14 x 6	16	23 x 12 1/2	105.00	110.50
3 1/2 x 2 1/2	6 1/2	9 x 7 1/2	12.25	13.50	14 x 8	16	23 x 15	105.00	110.50
4 x 2	7	10 x 6 1/2	13.50	15.00	14 x 10	16	23 x 17 1/2	105.00	110.50
4 x 2 1/2	7	10 x 7 1/2	13.50	15.00	14 x 12	16	23 x 20 1/2	105.00	110.50
4 x 3	7	10 x 8 1/4	13.50	15.00	15 x 8	17	24 1/2 x 15	120.00	127.00
5 x 2	8	11 x 6 1/2	18.75	20.25	15 x 10	17	24 1/2 x 17 1/2	120.00	127.00
5 x 2 1/2	8	11 x 7 1/2	18.75	20.25	15 x 12	17	24 1/2 x 20 1/2	120.00	127.00
5 x 3	8	11 x 8 1/4	18.75	20.25	15 x 14	17	24 1/2 x 23	120.00	127.00
5 x 4	8	11 x 10	18.75	20.25	16 x 8	18	25 1/2 x 15	135.00	143.00
6 x 3	9	12 1/2 x 8 1/4	22.75	24.75	16 x 10	18	25 1/2 x 17 1/2	135.00	143.00
6 x 3 1/2	9	12 1/2 x 9	22.75	24.75	16 x 12	18	25 1/2 x 20 1/2	135.00	143.00
6 x 4	9	12 1/2 x 10	22.75	24.75	16 x 14	18	25 1/2 x 23	135.00	143.00
6 x 5	9	12 1/2 x 11	22.75	24.75	18 x 10	19	28 x 17 1/2	157.00	166.00
7 x 3	10	14 x 8 1/4	31.50	33.75	18 x 12	19	28 x 20 1/2	157.00	166.00
7 x 4	10	14 x 10	31.50	33.75	18 x 14	19	28 x 23	157.00	166.00
7 x 5	10	14 x 11	31.50	33.75	18 x 16	19	28 x 25 1/2	157.00	166.00
7 x 6	10	14 x 12 1/2	31.50	33.75	20 x 12	20	30 1/2 x 20 1/2	180.00	190.00
8 x 3	11	15 x 8 1/4	36.00	38.50	20 x 14	20	30 1/2 x 23	180.00	190.00
8 x 4	11	15 x 10	36.00	38.50	20 x 16	20	30 1/2 x 25 1/2	180.00	190.00
8 x 5	11	15 x 11	36.00	38.50	20 x 18	20	30 1/2 x 28	180.00	190.00
8 x 6	11	15 x 12 1/2	36.00	38.50	22 x 14	22	33 x 23	225.00	238.00
10 x 4	12	17 1/2 x 10	57.00	61.00	22 x 16	22	33 x 25 1/2	225.00	238.00
10 x 5	12	17 1/2 x 11	57.00	61.00	22 x 18	22	33 x 28	225.00	238.00
10 x 6	12	17 1/2 x 12 1/2	57.00	61.00	22 x 20	22	33 x 30 1/2	225.00	238.00
10 x 8	12	17 1/2 x 15	57.00	61.00	24 x 16	24	36 x 25 1/2	285.00	300.00
12 x 5	14	20 1/2 x 11	84.00	88.50	24 x 18	24	36 x 28	285.00	300.00
12 x 6	14	20 1/2 x 12 1/2	84.00	88.50	24 x 20	24	36 x 30 1/2	285.00	300.00
12 x 8	14	20 1/2 x 15	84.00	88.50	24 x 22	24	36 x 33	285.00	300.00
12 x 10	14	20 1/2 x 17 1/2	84.00	88.50	.....	..	.....	.....	.....

Flanged eccentric taper reducers. Prices on application.



## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

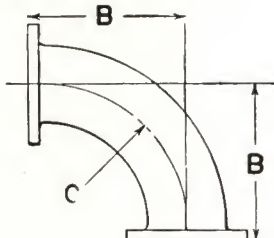
LONG RADIUS ELBOW

DIMENSIONS

BASE ELBOW, ROUND FLANGE



Fig. 9533A



"The 1915 U. S. Standard"

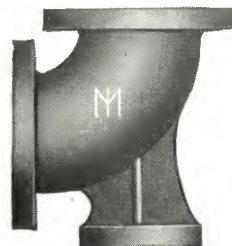


Fig. 9533B

LONG RADIUS ELBOWS

BASE ELBOWS

Size Inches	Center to Face Inches	Radius Inches	Diam. of Flanges Inches	PRICE, EACH		Size Inches	Diam. of Flanges Except Base Flange Inches	Center to Face Inches	Center to Face of Round or Square Base Inches	Diam. of Base Flanges Inches	PRICE, EACH		Facing and Drilling Base Flange
				With Faced Flanges	With Faced and Drilled Flanges						Faced Except Base Flange	Faced and Drilled Except Base Flange	
2	6 1/2	5 1/4	6 1/2	7.50	8.85	....	....	....	....	....	....	....	....
2 1/2	7	5 5/8	7 1/2	8.00	9.35	....	....	....	....	....	....	....	....
3	7 3/4	6 1/4	8 1/4	8.60	10.25	....	....	....	....	....	....	....	....
3 1/2	8 1/2	6 7/8	9	10.25	12.15	....	....	....	....	....	....	....	....
4	9	7 3/8	10	11.25	13.50	4	10	7	7	6 1/2	13.50	15.00	4.50
4 1/2	9 1/2	7 3/4	10 1/2	13.75	16.00	4 1/2	10 1/2	7 1/2	7 1/4	6 1/2	16.50	18.00	4.50
5	10 1/4	8 1/2	11	15.50	17.75	5	11	8	7 1/2	7 1/2	18.75	20.25	5.25
6	11 1/2	9 5/8	12 1/2	19.00	22.00	6	12 1/2	8 1/2	8	7 1/2	22.75	24.75	5.25
7	12 3/4	10 7/8	14	26.50	29.85	7	14	9	8 3/4	7 1/2	31.50	33.75	5.25
8	14	12	15	30.00	33.75	8	15	10	9 1/4	10	36.00	38.50	7.50
9	15 1/4	13	16 1/4	42.50	47.50	9	16 1/4	10 1/2	10	10	51.00	54.35	7.50
10	16 1/2	14 1/8	17 1/2	47.75	53.75	10	17 1/2	11 1/2	10 1/2	10	57.00	61.00	7.50
12	19	16 1/2	20 1/2	70.00	76.75	12	20 1/2	13	11	12 1/2	84.00	88.50	11.00
14	21 1/2	18 7/8	23	103.50	111.75	14	23	15	14	12 1/2	105.00	110.50	11.00
15	22 3/4	20	24 1/2	117.00	127.00	15	24 1/2	15 1/2	14 1/2	12 1/2	120.00	127.00	11.00
16	24	21 1/4	25 1/2	137.00	149.00	16	25 1/2	16 1/2	15 1/4	12 1/2	135.00	143.00	11.00

\*The measurement across the flat edges of square base flange is the same as the diameter of the round base flange.

Sizes above 16-inch, prices on application.

BASE TEES



Fig. 9533C

Base tees made to order. Prices on application.

## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

## SINGLE SWEEP TEES

## DIMENSIONS

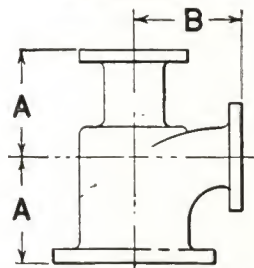


Fig. 9571A



Fig. 9571B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
			"A" Standard	"B" Reducing	STANDARD		*REDUCING	
					With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6½	10	5	5	7.50	8.85	8.50	9.95
2½	7½	11	5½	5½	8.00	9.35	9.15	10.50
3	8¼	12	6	6	8.60	10.25	9.90	11.55
3½	9	13	6½	6½	10.25	12.15	11.75	13.65
4	10	14	7	7	11.25	13.50	13.00	15.25
4½	10½	15	7½	7½	13.75	16.00	15.75	18.00
5	11	16	8	8	15.50	17.75	17.85	20.10
6	12½	17	8½	8½	19.00	22.00	22.00	25.00
7	14	18	9	9	26.50	29.85	30.50	33.85
8	15	20	10	10	30.00	33.75	34.50	38.25
9	16¼	21	10½	10½	42.50	47.50	49.00	54.00
10	17½	23	11½	11½	47.75	53.75	55.00	61.00
12	20½	26	13	13	70.00	76.75	80.00	86.75
14	23	30	15	15	103.50	111.75	119.00	127.25
15	24½	31	15½	15½	117.00	127.00	135.00	145.00
16	25½	33	16½	16½	137.00	149.00	158.00	170.00
18	28	36	18	18	177.00	191.00	204.00	218.00
20	30½	39	19½	19½	225.00	240.00	260.00	275.00
22	33	41	20½	20½	285.00	305.00	327.00	347.00
24	36	45	22½	22½	350.00	373.00	402.00	425.00

Furnished faced only, unless otherwise ordered.

\*Reducing in run or branch.

Larger sizes made to order. Prices on application. Reducing single sweep tees made to order only. Single sweep tees not made with the side opening larger than the run.

Bullheads or tees having outlet larger than the run will be the same length center to face of all openings as a tee with all openings of the size of the outlet. For example, a 12x12x18-inch tee will be governed by the dimensions of the 18-inch long body tee, namely, 18 inches center to face of all openings, and 36 inches face to face.

## EXTRA HEAVY FLANGED FITTINGS

For 250 Pounds Steam Working Pressure

### DOUBLE SWEEP TEES



Fig. 9572A

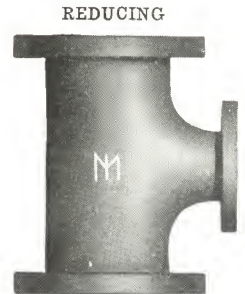
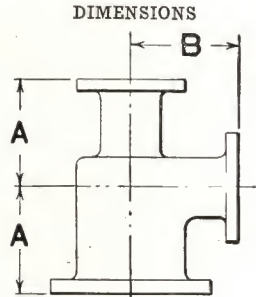


Fig. 9572B

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Face to Face "AA" Inches	CENTER TO FACE INCHES		PRICE, EACH			
			"A" Standard	"B" Reducing	STANDARD		REDUCING	
					With Faced Flanges	With Faced and Drilled Flanges	With Faced Flanges	With Faced and Drilled Flanges
2	6 1/2	10	5	5	7.50	8.85	8.60	9.95
2 1/2	7 1/2	11	5 1/2	5 1/2	8.00	9.35	9.15	10.50
3	8 1/4	12	6	6	8.60	10.25	9.90	11.55
3 1/2	9	13	6 1/2	6 1/2	10.25	12.15	11.75	13.65
4	10	14	7	7	11.25	13.50	13.00	15.25
4 1/2	10 1/2	15	7 1/2	7 1/2	13.75	16.00	15.75	18.00
5	11	16	8	8	15.50	17.75	17.85	20.10
6	12 1/2	17	8 1/2	8 1/2	19.00	22.00	22.00	25.00
7	14	18	9	9	26.50	29.85	30.50	33.85
8	15	20	10	10	30.00	33.75	34.50	38.25
9	16 1/4	21	10 1/2	10 1/2	42.50	47.50	49.00	54.00
10	17 1/2	23	11 1/2	11 1/2	47.75	53.75	55.00	61.00
12	20 1/2	26	13	13	70.00	76.75	80.00	86.75
14	23	30	15	15	103.50	111.75	119.00	127.25
15	24 1/2	31	15 1/2	15 1/2	117.00	127.00	135.00	145.00
16	25 1/2	33	16 1/2	16 1/2	137.00	149.00	158.00	170.00
18	28	36	18	18	177.00	191.00	204.00	218.00
20	30 1/2	39	19 1/2	19 1/2	225.00	240.00	260.00	275.00
22	33	41	20 1/2	20 1/2	285.00	305.00	327.00	347.00
24	36	45	22 1/2	22 1/2	350.00	373.00	402.00	425.00

Furnished faced only, unless otherwise ordered.

Reducing double sweep tees made to order only.

Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, we will alter patterns (which will be expensive) and charge at a special price. We can only increase branch (outlet) within a reasonable limit, which must be regulated by our patterns.



# EXTRA HEAVY COMPANION FLANGES

FOR EXTRA HEAVY FLANGED VALVES AND FITTINGS

For 250 Pounds Steam Working Pressure

BACK VIEW, SHOWING HUB



Fig. 2550A

SMOOTH FACE



Fig. 2550B

BLIND FLANGE  
16-INCH AND SMALLER



Fig. 2550C

Unless otherwise specified, we always furnish extra heavy flanges and fittings with  $\frac{1}{16}$ -inch raised face, for which there is no extra charge. This style of facing will hold any gasket, and is especially necessary where a thin corrugated copper gasket is used, as this gasket draws down to  $\frac{1}{32}$  inch or less and the heavy bolting would (without the raised face) spring the flanges until the edges touch, without putting sufficient pressure on the gasket.

"The 1915 U. S. Standard"

Size Inches	CAST IRON		STEEL		CAST STEEL		FORGED STEEL		BLIND FLANGES	
	PRICE, EACH		PRICE, EACH		PRICE, EACH		PRICE, EACH		PRICE, EACH	
	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled	Faced	Faced and Drilled
1 x $4\frac{1}{2}$	.95	1.30	1.20	1.65	5.00	5.50	7.50	8.00	.....	.....
$1\frac{1}{4}$ x 5	1.00	1.35	1.25	1.70	5.40	6.00	8.40	9.00	.....	.....
$1\frac{1}{2}$ x 6	1.10	1.45	1.35	1.80	5.90	6.50	9.40	10.00	1.65	2.00
2 x $6\frac{1}{2}$	1.25	1.60	1.55	2.00	6.90	7.50	10.40	11.00	1.90	2.25
$2\frac{1}{2}$ x $7\frac{1}{2}$	1.40	1.75	1.75	2.20	7.30	8.50	11.80	13.00	2.10	2.45
3 x $8\frac{1}{4}$	1.60	2.05	2.00	2.55	8.70	10.00	13.70	15.00	2.40	2.85
$3\frac{1}{2}$ x 9	2.00	2.55	2.50	3.20	12.10	13.50	17.60	19.00	3.00	3.55
4 x 10	2.25	2.95	2.80	3.70	14.80	16.50	18.30	20.00	3.35	4.05
$4\frac{1}{2}$ x $10\frac{1}{2}$	2.40	3.10	3.00	3.90	15.80	17.50	20.30	22.00	3.60	4.30
5 x 11	2.65	3.35	3.30	4.20	16.80	18.50	22.30	24.00	4.00	4.70
6 x $12\frac{1}{2}$	3.30	4.05	4.10	5.05	20.40	22.00	25.40	27.00	5.00	5.75
7 x 14	4.40	5.30	5.50	6.60	24.70	27.50	27.20	32.00	6.60	7.50
8 x 15	5.10	6.15	6.40	7.70	27.00	30.00	32.00	35.00	7.65	8.70
9 x $16\frac{1}{4}$	6.30	7.50	7.90	9.40	29.50	32.50	37.00	40.00	9.50	10.70
10 x $17\frac{1}{2}$	7.40	8.90	9.25	11.00	34.50	37.50	45.00	48.00	11.00	12.50
12 x $20\frac{1}{2}$	10.75	12.50	13.50	15.50	46.00	50.00	56.00	60.00	16.00	17.75
14 x 23	15.00	17.00	18.50	21.00	55.50	60.00	75.50	80.00	22.50	24.50
15 x $24\frac{1}{2}$	19.00	21.50	24.00	27.00	64.00	70.00	84.00	90.00	28.50	31.00
16 x $25\frac{1}{2}$	22.25	25.00	28.00	31.00	78.00	85.00	93.00	100.00	33.50	36.25
18 x 28	26.00	29.00	32.50	36.00	98.00	105.00	118.00	125.00	39.00	42.00
20 x $30\frac{1}{2}$	31.00	35.00	39.00	44.00	117.00	125.00	142.00	150.00	46.00	50.00
22 x 33	36.00	41.00	45.00	51.00	140.00	150.00	165.00	175.00	54.00	59.00
24 x 36	45.00	50.00	56.00	62.00	165.00	175.00	200.00	210.00	67.00	72.00

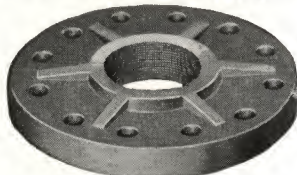
Furnished faced only, unless otherwise ordered. For malleable iron flanges, use double the list prices of cast iron.

## EXTRA HEAVY REDUCING COMPANION FLANGES

WITH RIBS

FOR EXTRA HEAVY FLANGED VALVES AND FITTINGS

For 250 Pounds Steam Working Pressure



Prices on Eccentric Flanges  
Double List Given Below

Fig. 9579A

These flanges, used in connection with straight or reducing fittings, enable us to fill orders more promptly. Customers who desire fittings reduced in this manner will please specify "Reduce by Flanges if Necessary."

These flanges will always be of the same thickness as the regular companion flanges of corresponding outside diameters, and drilled to the template corresponding to the outside diameter, unless otherwise ordered.

In ordering reducing companion flanges always give the screwed or reduced size first, then the outside diameter of flange wanted; for instance, if a reducing flange is wanted to connect a 6-inch pipe to a 9-inch flanged valve or fitting having a 16 $\frac{1}{4}$ -inch O. D. flange, order a 6x16 $\frac{1}{4}$ -inch reducing flange. This will clearly avoid the confusion often caused by orders incorrectly calling for a 9x6 or a 6x9-inch flange.

"The 1915 U. S. Standard"

Size Inches	PRICE, EACH		Size Inches	PRICE, EACH		Size Inches	PRICE, EACH	
	Faced	Faced and Drilled		Faced	Faced and Drilled		Faced	Faced and Drilled
1 $\frac{1}{2}$ x 7 $\frac{1}{2}$	2.30	2.65	4 x12 $\frac{1}{2}$	5.50	6.25	10x20 $\frac{1}{2}$	17.50	19.25
2 x 7 $\frac{1}{2}$	2.30	2.65	4 $\frac{1}{2}$ x12 $\frac{1}{2}$	5.50	6.25	8x23	25.00	27.00
1 $\frac{1}{2}$ x 8 $\frac{1}{4}$	2.65	3.10	5 x12 $\frac{1}{2}$	5.50	6.25	9x23	25.00	27.00
2 x 8 $\frac{1}{4}$	2.65	3.10	4 $\frac{1}{2}$ x14	7.25	8.15	10x23	25.00	27.00
2 $\frac{1}{2}$ x 8 $\frac{1}{4}$	2.65	3.10	5 x14	7.25	8.15	12x23	25.00	27.00
2 x 9	3.30	3.85	6 x14	7.25	8.15	8x24 $\frac{1}{2}$	31.50	34.00
2 $\frac{1}{2}$ x 9	3.30	3.85	3 x15	8.40	9.45	10x24 $\frac{1}{2}$	31.50	34.00
3 x 9	3.30	3.85	3 $\frac{1}{2}$ x15	8.40	9.45	12x24 $\frac{1}{2}$	31.50	34.00
2 x10	3.70	4.40	4 x15	8.40	9.45	14x24 $\frac{1}{2}$	31.50	34.00
2 $\frac{1}{2}$ x10	3.70	4.40	5 x15	8.40	9.45	10x25 $\frac{1}{2}$	37.00	39.75
3 x10	3.70	4.40	6 x15	8.40	9.45	12x25 $\frac{1}{2}$	37.00	39.75
3 $\frac{1}{2}$ x10	3.70	4.40	7 x15	8.40	9.45	14x25 $\frac{1}{2}$	37.00	39.75
2 x10 $\frac{1}{2}$	4.00	4.70	4 x16 $\frac{1}{4}$	10.50	11.70	15x25 $\frac{1}{2}$	37.00	39.75
2 $\frac{1}{2}$ x10 $\frac{1}{2}$	4.00	4.70	5 x16 $\frac{1}{4}$	10.50	11.70	12x28	43.00	46.00
3 x10 $\frac{1}{2}$	4.00	4.70	6 x16 $\frac{1}{4}$	10.50	11.70	14x28	43.00	46.00
3 $\frac{1}{2}$ x10 $\frac{1}{2}$	4.00	4.70	7 x16 $\frac{1}{4}$	10.50	11.70	15x28	43.00	46.00
4 x10 $\frac{1}{2}$	4.00	4.70	8 x16 $\frac{1}{4}$	10.50	11.70	16x28	43.00	46.00
2 x11	4.40	5.10	5 x17 $\frac{1}{2}$	12.00	13.50	14x30 $\frac{1}{2}$	51.00	55.00
2 $\frac{1}{2}$ x11	4.40	5.10	6 x17 $\frac{1}{2}$	12.00	13.50	15x30 $\frac{1}{2}$	51.00	55.00
3 x11	4.40	5.10	7 x17 $\frac{1}{2}$	12.00	13.50	16x30 $\frac{1}{2}$	51.00	55.00
3 $\frac{1}{2}$ x11	4.40	5.10	8 x17 $\frac{1}{2}$	12.00	13.50	18x30 $\frac{1}{2}$	51.00	55.00
4 x11	4.40	5.10	9 x17 $\frac{1}{2}$	12.00	13.50	16x33	60.00	65.00
4 $\frac{1}{2}$ x11	4.40	5.10	6 x20 $\frac{1}{2}$	17.50	19.25	18x33	60.00	65.00
2 x12 $\frac{1}{2}$	5.50	6.25	7 x20 $\frac{1}{2}$	17.50	19.25	20x33	60.00	65.00
2 $\frac{1}{2}$ x12 $\frac{1}{2}$	5.50	6.25	8 x20 $\frac{1}{2}$	17.50	19.25	18x36	74.00	79.00
3 x12 $\frac{1}{2}$	5.50	6.25	9 x20 $\frac{1}{2}$	17.50	19.25	20x36	74.00	79.00

Furnished faced only, unless otherwise ordered.

# TEMPLATES FOR DRILLING EXTRA HEAVY FLANGED VALVES AND FITTINGS

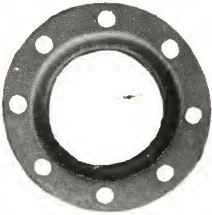


Fig. 2539A

## SIZES 1-INCH TO 48-INCH, INCLUSIVE

These drilling templates are in multiples of four, so that fittings may be made to face in any quarter, and bolt holes straddle the center line. They can be drilled to any other template, if so desired.

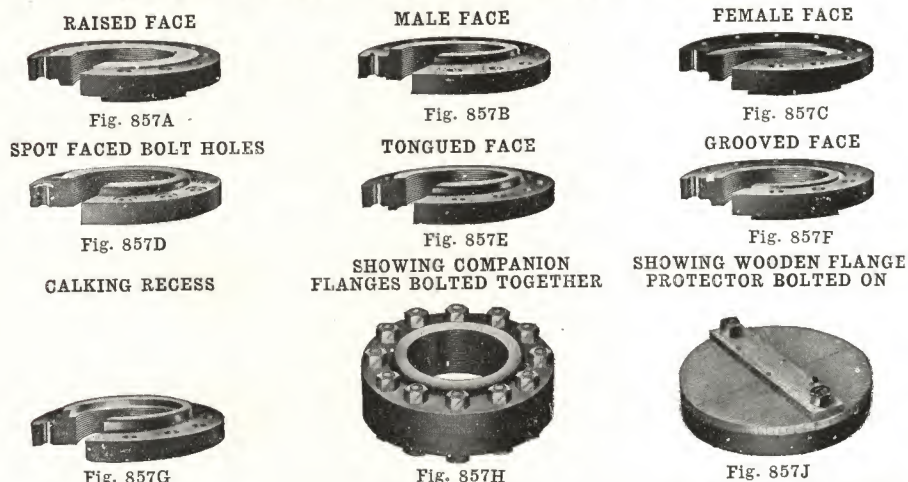
Bolt holes are drilled  $\frac{1}{8}$  inch larger than nominal diameter of bolts, except that brass valves and fittings, 6-inch and smaller, have holes  $\frac{1}{16}$  inch larger than the bolts.

"The 1915 U. S. Standard"

Size Inches	Diameter of Flanges Inches	Thickness of Flanges Inches	Bolt Circle Inches	Number of Bolts	Size of Bolts Inches	Bolt Lengths Inches
1	4 $\frac{1}{2}$	1 $\frac{1}{16}$	3 $\frac{1}{4}$	4	1 $\frac{1}{2}$	2
1 $\frac{1}{4}$	5	3 $\frac{1}{4}$	3 $\frac{3}{4}$	4	1 $\frac{1}{2}$	2 $\frac{1}{4}$
1 $\frac{1}{2}$	6	4 $\frac{1}{16}$	4 $\frac{1}{2}$	4	5 $\frac{5}{8}$	2 $\frac{1}{2}$
2	6 $\frac{1}{2}$	7 $\frac{7}{8}$	5	4	5 $\frac{5}{8}$	2 $\frac{1}{2}$
2 $\frac{1}{2}$	7 $\frac{1}{2}$	1	5 $\frac{7}{8}$	4	3 $\frac{1}{4}$	3
3	8 $\frac{1}{4}$	1 $\frac{1}{8}$	6 $\frac{5}{8}$	8	3 $\frac{1}{4}$	3 $\frac{1}{4}$
3 $\frac{1}{2}$	9	1 $\frac{3}{16}$	7 $\frac{1}{4}$	8	3 $\frac{1}{4}$	3 $\frac{1}{4}$
4	10	1 $\frac{1}{4}$	7 $\frac{7}{8}$	8	3 $\frac{1}{4}$	3 $\frac{1}{2}$
4 $\frac{1}{2}$	10 $\frac{1}{2}$	1 $\frac{5}{16}$	8 $\frac{1}{2}$	8	3 $\frac{1}{4}$	3 $\frac{1}{2}$
5	11	1 $\frac{3}{8}$	9 $\frac{1}{4}$	8	3 $\frac{1}{4}$	3 $\frac{3}{4}$
6	12 $\frac{1}{2}$	1 $\frac{7}{16}$	10 $\frac{5}{8}$	12	3 $\frac{1}{4}$	3 $\frac{3}{4}$
7	14	1 $\frac{1}{2}$	11 $\frac{7}{8}$	12	7 $\frac{7}{8}$	4
8	15	1 $\frac{5}{8}$	13	12	7 $\frac{7}{8}$	4 $\frac{1}{4}$
9	16 $\frac{1}{4}$	1 $\frac{3}{4}$	14	12	1	4 $\frac{3}{4}$
10	17 $\frac{1}{2}$	1 $\frac{7}{8}$	15 $\frac{1}{4}$	16	1	5
12	20 $\frac{1}{2}$	2	17 $\frac{3}{4}$	16	1 $\frac{1}{8}$	5 $\frac{1}{2}$
14	23	2 $\frac{1}{8}$	20 $\frac{1}{4}$	20	1 $\frac{1}{8}$	5 $\frac{3}{4}$
15	24 $\frac{1}{2}$	2 $\frac{3}{16}$	21 $\frac{1}{2}$	20	1 $\frac{1}{4}$	6
16	25 $\frac{1}{2}$	2 $\frac{1}{4}$	22 $\frac{1}{2}$	20	1 $\frac{1}{4}$	6
18	28	2 $\frac{3}{8}$	24 $\frac{3}{4}$	24	1 $\frac{1}{4}$	6 $\frac{1}{4}$
20	30 $\frac{1}{2}$	2 $\frac{1}{2}$	27	24	1 $\frac{3}{8}$	6 $\frac{3}{4}$
22	33	2 $\frac{5}{8}$	29 $\frac{1}{4}$	24	1 $\frac{1}{2}$	7
24	36	2 $\frac{3}{4}$	32	24	1 $\frac{5}{8}$	7 $\frac{1}{2}$
26	38 $\frac{1}{4}$	2 $\frac{13}{16}$	34 $\frac{1}{2}$	28	1 $\frac{5}{8}$	8
28	40 $\frac{3}{4}$	2 $\frac{15}{16}$	37	28	1 $\frac{5}{8}$	8
30	43	3	39 $\frac{1}{4}$	28	1 $\frac{3}{4}$	8 $\frac{1}{2}$
32	45 $\frac{1}{4}$	3 $\frac{1}{8}$	41 $\frac{1}{2}$	28	1 $\frac{7}{8}$	9
34	47 $\frac{1}{2}$	3 $\frac{1}{4}$	43 $\frac{1}{2}$	28	1 $\frac{7}{8}$	9
36	50	3 $\frac{3}{8}$	46	32	1 $\frac{7}{8}$	9 $\frac{1}{2}$
38	52 $\frac{1}{4}$	3 $\frac{7}{16}$	48	32	1 $\frac{7}{8}$	9 $\frac{1}{2}$
40	54 $\frac{1}{2}$	3 $\frac{9}{16}$	50 $\frac{1}{4}$	36	1 $\frac{7}{8}$	10
42	57	3 $\frac{11}{16}$	52 $\frac{3}{4}$	36	1 $\frac{7}{8}$	10
44	59 $\frac{1}{4}$	3 $\frac{3}{4}$	55	36	2	10 $\frac{1}{2}$
46	61 $\frac{1}{2}$	3 $\frac{7}{8}$	57 $\frac{1}{4}$	40	2	10 $\frac{1}{2}$
48	65	4	60 $\frac{3}{4}$	40	2	11



## METHODS OF FACING EXTRA HEAVY COMPANION FLANGES



NOTE—Unless otherwise specified we will always furnish Extra Heavy Companion Flanges, Flanged Fittings and Valves, with  $\frac{3}{8}$  inch raised face, without extra charge. Gaskets will only be furnished when specified and at an extra price.

### NET PRICE LIST FOR FACING EXTRA HEAVY COMPANION FLANGES

Size Inches	Extra for Male or Female Face per Flange	Extra for Tongued or Grooved Face per Flange	Extra for $\frac{1}{8}$ Inch Raised Face per Flange	Extra for Calking Recess per Flange	Extra for Spot Fac- ing Bolt Holes per Flange	Extra for Bolting on Fittings, not Including Bolts or Gaskets per Flange	Extra for Wooden Protectors, Bolted on with 2 Small Bolts, Including the 2 Bolts per Flange
1 x $4\frac{1}{2}$	.50	.50	.50	.50	.20	.10	.20
$1\frac{1}{4}$ x 5	.50	.50	.50	.50	.20	.10	.20
$1\frac{1}{2}$ x 6	.50	.50	.50	.50	.20	.10	.20
2 x $6\frac{1}{2}$	.50	.50	.50	.50	.20	.10	.20
$2\frac{1}{2}$ x $7\frac{1}{2}$	.65	.65	.65	.65	.20	.10	.20
3 x $8\frac{1}{4}$	.65	.65	.65	.65	.40	.15	.25
$3\frac{1}{2}$ x 9	.65	.65	.65	.65	.40	.15	.25
4 x 10	.65	.65	.65	.65	.40	.15	.25
$4\frac{1}{2}$ x $10\frac{1}{2}$	.65	.65	.65	.65	.40	.15	.25
5 x 11	.65	.65	.65	.65	.40	.15	.25
6 x $12\frac{1}{2}$	.80	.80	.80	.80	.60	.20	.30
7 x 14	.80	.80	.80	.80	.60	.20	.30
8 x 15	1.00	1.00	1.00	1.00	.60	.20	.30
9 x $16\frac{1}{4}$	1.00	1.00	1.00	1.00	.60	.20	.30
10 x $17\frac{1}{2}$	1.00	1.00	1.00	1.00	.80	.20	.35
12 x $20\frac{1}{2}$	1.25	1.25	1.25	1.25	.80	.25	.35
14 x 23	1.60	1.60	1.60	1.60	1.00	.25	.40
15 x $24\frac{1}{2}$	1.60	1.60	1.60	1.60	1.00	.25	.40
16 x $25\frac{1}{2}$	2.00	2.00	2.00	2.00	1.00	.25	.45
18 x 28	2.50	2.50	2.50	2.50	1.20	.25	.45
20 x $30\frac{1}{2}$	3.00	3.00	3.00	3.00	1.20	.25	.50
22 x 33	4.00	4.00	4.00	4.00	1.40	.25	.50
24 x 36	5.00	5.00	5.00	5.00	1.40	.25	.50

# **PRICE LIST FOR DRILLING** **STANDARD, LOW PRESSURE, MEDIUM AND EXTRA HEAVY** **FLANGED VALVES AND FITTINGS**

Size Inches	PRICE, EACH, FOR DRILLING STANDARD AND LOW PRESSURE VALVES			PRICE, EACH, FOR DRILLING MEDIUM AND EXTRA HEAVY VALVES		
	With Two Flanges Except Angle Valves	Angle Valves	Cross Valves and Cross Safety Valves	With Two Flanges Except Angle Valves	Angle Valves	Cross Valves
3/4	.60	1.00	1.20	....	....	....
1	.60	1.00	1.20	.60	1.00	....
1 1/4	.60	1.00	1.20	.60	1.00	....
1 1/2	.60	1.00	1.20	.60	1.00	....
2	.75	1.25	1.50	.75	1.25	1.50
2 1/2	.75	1.25	1.50	.75	1.25	1.50
3	.75	1.25	1.50	.75	1.25	1.50
3 1/2	1.00	1.50	2.00	1.00	1.50	2.00
4	1.25	1.75	2.50	1.25	1.75	2.50
4 1/2	1.50	2.00	3.00	1.50	2.00	3.00
5	1.50	2.00	3.00	1.50	2.00	3.00
6	1.75	2.50	3.50	1.75	2.50	3.50
7	2.25	3.00	4.50	2.25	3.00	4.50
8	2.25	3.00	4.50	2.25	3.00	4.50
9	2.50	3.50	5.00	2.50	3.50	5.00
10	2.50	3.50	5.00	2.50	3.50	5.00
12	3.50	5.00	7.00	3.50	5.00	7.00
14	4.00	6.00	....	4.00	6.00	8.00
15	4.50	6.50	....	4.00	6.00	8.00
16	5.00	7.00	....	5.00	7.00	10.00
18	6.00	10.00	....	6.00	....	....
20	7.50	12.00	....	7.50	....	....
22	9.00	14.00	....	9.00	....	....
24	10.00	16.00	....	10.00	....	....
26	11.00	18.00	....	....	....	....
28	12.00	20.00	....	....	....	....
30	12.00	22.00	....	12.00	....	....
32	12.00	22.00	....	....	....	....
34	14.00	24.00	....	....	....	....
36	14.00	24.00	....	....	....	....
42	25.00	....	....	....	....	....
48	30.00	....	....	....	....	....

## **EXTRA NET PRICES FOR ATTACHING COMPANION FLANGES TO STANDARD FLANGED FITTINGS AND VALVES**

Size Inches	PRICE, EACH		Size Inches	PRICE, EACH	
	For Bolting Com- panion Flanges to Fittings Single Flange	Wooden Protec- tors Bolted on with Two Bolts		For Bolting Com- panion Flanges to Fittings Single Flange	Wooden Protec- tors Bolted on with Two Bolts
1 1/4	.10	.20	6	.15	.25
1 1/2	.10	.20	7	.15	.30
2	.10	.20	8	.15	.30
2 1/2	.10	.20	9	.20	.30
3	.10	.25	10	.20	.35
3 1/2	.10	.25	12	.20	.35
4	.10	.25	14	.20	.40
4 1/2	.15	.25	15	.25	.40
5	.15	.25	16	.25	.45

Bolts and gaskets not included in above prices. Spot facing bolt holes, 5 cents net extra, for each hole.

## EXTRA HEAVY CAST IRON REDUCING FLANGED FITTINGS

### LIST OF SIZES CARRIED IN STOCK

#### REDUCING FLANGED TEES

2½ x 2½ x 2	5 x 5 x 3½	7 x 7 x 3	10 x 10 x 2
2½ x 2½ x 1½	5 x 5 x 3	7 x 7 x 2	10 x 8 x 10
2½ x 2½ x 1¼	5 x 5 x 2½	7 x 6 x 7	10 x 6 x 10
2½ x 2 x 2	5 x 5 x 2	7 x 6 x 6	10 x 8 x 8
3 x 3 x 2	5 x 5 x 1½	7 x 5 x 5	10 x 8 x 6
3 x 3 x 1	5 x 4 x 5	6 x 6 x 7	10 x 8 x 5
3 x 3 x 1½	5 x 3 x 5		10 x 6 x 8
3 x 3 x 1¼	5 x 2½ x 5	8 x 8 x 7	10 x 6 x 6
3 x 2½ x 3	5 x 4 x 4	8 x 8 x 6	8 x 8 x 10
3 x 2 x 3	5 x 4 x 3	8 x 8 x 5	7 x 7 x 10
3 x 1½ x 3	5 x 4 x 2½	8 x 8 x 4½	
3 x 1¼ x 3	5 x 3 x 4	8 x 8 x 4	12 x 12 x 10
3 x 2½ x 2½	5 x 3 x 3	8 x 8 x 3½	12 x 12 x 9
3 x 2 x 2	4 x 4 x 5	8 x 8 x 3	12 x 12 x 8
2 x 2 x 3		8 x 8 x 2½	12 x 12 x 7
		8 x 8 x 2	12 x 12 x 6
3½ x 3½ x 2½	6 x 6 x 5	8 x 6 x 8	12 x 12 x 5
3½ x 3½ x 2	6 x 6 x 4½	8 x 4 x 8	12 x 12 x 4
3½ x 2½ x 3½	6 x 6 x 3½	8 x 3 x 8	12 x 12 x 3
	6 x 6 x 3	8 x 7 x 6	12 x 12 x 2½
4 x 4 x 3½	6 x 6 x 2½	8 x 7 x 5	12 x 10 x 12
4 x 4 x 3	6 x 6 x 2	8 x 6 x 7	12 x 8 x 12
4 x 4 x 2½	6 x 5 x 6	8 x 6 x 6	12 x 10 x 10
4 x 4 x 2	6 x 4 x 6	8 x 6 x 4	12 x 10 x 8
4 x 4 x 1½	6 x 3 x 6	8 x 5 x 6	12 x 10 x 6
4 x 3 x 4	6 x 2½ x 6	8 x 5 x 5	12 x 8 x 8
4 x 2½ x 4	6 x 5 x 5	8 x 4 x 6	12 x 8 x 6
4 x 2 x 4	6 x 5 x 4	8 x 4 x 4	10 x 10 x 12
4 x 3 x 3	6 x 5 x 3	6 x 6 x 8	8 x 8 x 12
4 x 3 x 2	6 x 5 x 2½	5 x 5 x 8	
4 x 3 x 1½	6 x 5 x 2		14 x 14 x 12
4 x 2½ x 2½	6 x 4 x 5	9 x 9 x 6	14 x 14 x 10
4 x 2 x 3	6 x 4 x 4	9 x 9 x 5	14 x 14 x 8
3 x 3 x 4	6 x 4 x 3		14 x 14 x 7
2½ x 2½ x 4	6 x 3 x 3	10 x 10 x 8	14 x 14 x 6
	5 x 5 x 6	10 x 10 x 7	14 x 14 x 5
4½ x 4½ x 3	4½ x 4½ x 6	10 x 10 x 6	14 x 12 x 8
4½ x 4½ x 2	4 x 4 x 6	10 x 10 x 5	
4½ x 4 x 4½		10 x 10 x 4½	16 x 16 x 10
		10 x 10 x 4	16 x 16 x 8
		10 x 10 x 3½	16 x 16 x 7
5 x 5 x 4	7 x 7 x 6	10 x 10 x 3	16 x 16 x 6
	7 x 7 x 5		
	7 x 7 x 4		

Continued on next page.



## EXTRA HEAVY CAST IRON FLANGED FITTINGS

### REDUCING SINGLE SWEEP FLANGED TEES

4 x 4 x 2½	6 x 6 x 4	8 x 8 x 6
4 x 4 x 2	6 x 4 x 4	8 x 6 x 6

### REDUCING DOUBLE SWEEP FLANGED TEES

5 x 5 x 4	6 x 6 x 3	8 x 8 x 5
5 x 5 x 3	8 x 8 x 6	.....

### REDUCING FLANGED CROSSES

3 x 3 x 2½ x 2½	8 x 8 x 6 x 6
4 x 4 x 2½ x 2½	8 x 8 x 5 x 5
6 x 6 x 4 x 4	8 x 8 x 4 x 4
6 x 6 x 3 x 3	.....

### REDUCING FLANGED LATERALS

4 x 4 x 2½	6 x 6 x 2½
------------	------------

These sizes, as listed above and on opposite page, with special reducing companion flanges, enable us to furnish almost every variety of fittings required, except special angles, offsets, etc.

Reducing ribbed flanges are carried in stock, as per table on page 84. These flanges will always be the same thickness as the regular companion flanges of corresponding outside diameter.

The flanges are always drilled to the template corresponding to the outside diameter, unless otherwise ordered.

Customers who desire fittings reduced in this manner will please specify "REDUCE BY FLANGES IF NECESSARY."

Reducing flanged single and double sweep tees, crosses and laterals are made to order only.

### PRICES OF SIZES NOT CARRIED IN STOCK

Sizes not covered in the list of sizes carried in stock, as given above and on opposite page, will be considered special, and made to order at the following advance in prices, according to the quantity of a size ordered at one time, viz.:

Add to the Regular List Prices of Reducing Flanged Fittings  
on Pages 164-165 the Percentage Advances Given Below

Size	One Piece	Two Pieces	Three Pieces	Four Pieces	Five Pieces	Six or More
3½-inch and Smaller	50%	40%	30%	20%	10%	No Advance
4 to 8-inch	25%	20%	15%	10%	5%	" "

Sizes 9-inch and larger, will be made to order in quantities of one or more of a size, at the regular list and discount.

Single sweep tees are not made with side openings larger than the run.

Double sweep tees are not made reducing on the run. Should such tees, however, be wanted, patterns can be altered (which will be expensive) and charged at a special price.

On double sweep tees, branch (outlet) can only be increased within a reasonable limit, which must be regulated by patterns which the manufacturers have.

Furnished faced only, unless otherwise ordered.

General dimensions and templates for drilling, page 85.

## CAST IRON FLANGED FITTINGS

These fittings are special and will be made to order for either 125 or 250 pounds working pressure.

SIDE OUTLET  
ELBOW

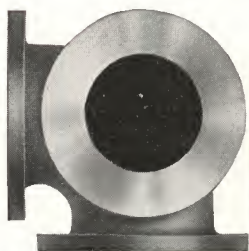


Fig. 10499A

EXTENSION ELBOW  
WITH SQUARE OR ROUND BASE



Fig. 10499B

REDUCING SIDE  
OUTLET ELBOW

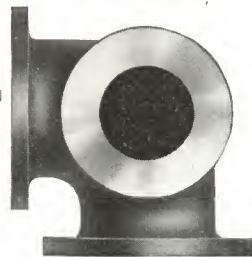


Fig. 10499C

DOUBLE BRANCH  
ELBOW



Fig. 10499D

REDUCING DOUBLE  
BRANCH ELBOW



Fig. 10499E

FOUR-WAY TEE

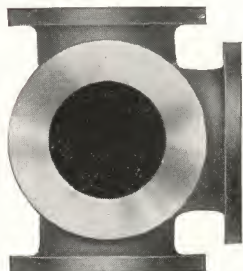


Fig. 10499F

REDUCING FOUR-WAY TEE

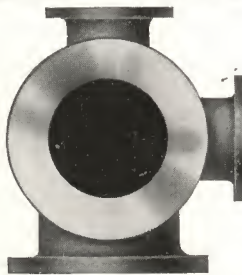


Fig. 10499G

"Y" BRANCH



Fig. 10499H

Reducing side outlet elbows made reducing on the side outlet only. Double branch elbows made reducing on the run only.

When ordering, or requesting prices, send sketch showing sizes of all openings. Prices on application.

## RING GASKETS

FOR STANDARD AND EXTRA HEAVY FLANGED VALVES  
AND FITTINGS

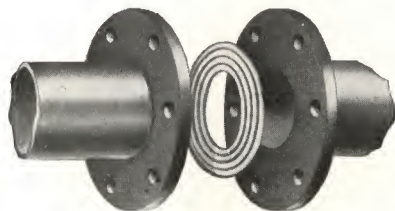


Fig. 5316A

## STANDARD

## EXTRA HEAVY

Size of Valve or Fitting Inches	Inside and Outside Diameters Inches	PRICE, EACH			Size Valve or Fitting Inches	Inside and Outside Diameter Inches	PRICE, EACH	
		$\frac{1}{8}$ -inch Cloth Insertion	$\frac{1}{8}$ -inch Red Rubber	Corru- gated Copper			$\frac{1}{8}$ -inch Red Rubber	Corru- gated Copper
$\frac{3}{4}$	$\frac{3}{4} \times 2\frac{1}{8}$	.02	.04	.02	1	1 x $2\frac{3}{4}$	.08	.04
1	1 x $2\frac{9}{16}$	.02	.04	.02	$1\frac{1}{4}$	$1\frac{1}{4} \times 3\frac{1}{4}$	.08	.04
$1\frac{1}{4}$	$1\frac{1}{4} \times 2\frac{5}{8}$	.03	.06	.03	$1\frac{1}{2}$	$1\frac{1}{2} \times 3\frac{7}{8}$	.08	.04
$1\frac{1}{2}$	$1\frac{1}{2} \times 3\frac{3}{8}$	.03	.06	.04	2	2 x $4\frac{3}{8}$	.09	.05
2	2 x $4\frac{1}{8}$	.03	.08	.05	$2\frac{1}{2}$	$2\frac{1}{2} \times 5\frac{1}{8}$	.12	.06
$2\frac{1}{2}$	$2\frac{1}{2} \times 4\frac{7}{8}$	.04	.10	.06	3	3 x $5\frac{7}{8}$	.15	.08
3	3 x $5\frac{3}{8}$	.05	.12	.07	$3\frac{1}{2}$	$3\frac{1}{2} \times 6\frac{1}{2}$	.16	.09
$3\frac{1}{2}$	$3\frac{1}{2} \times 6\frac{3}{8}$	.06	.16	.09	4	4 x $7\frac{1}{8}$	.18	.10
4	4 x $6\frac{7}{8}$	.07	.18	.10	$4\frac{1}{2}$	$4\frac{1}{2} \times 7\frac{3}{4}$	.21	.12
$4\frac{1}{2}$	$4\frac{1}{2} \times 7$	.07	.20	.11	5	5 x $8\frac{1}{2}$	.25	.15
5	5 x $7\frac{3}{4}$	.08	.24	.12	6	6 x $9\frac{7}{8}$	.30	.18
6	6 x $8\frac{3}{4}$	.10	.28	.13	7	7 x 11	.40	.21
7	7 x 10	.12	.32	.15	8	8 x $12\frac{1}{8}$	.42	.24
8	8 x 11	.13	.35	.17	9	9 x 13	.48	.27
9	9 x $12\frac{1}{2}$	.16	.40	.23	10	10 x $14\frac{1}{4}$	.55	.33
10	10 x $13\frac{3}{8}$	.18	.48	.25	12	12 x $16\frac{5}{8}$	.70	.42
12	12 x $16\frac{1}{8}$	.25	.60	.36	14	$13\frac{1}{4} \times 19\frac{1}{8}$	1.00	.55
14	14 x $17\frac{3}{4}$	.30	.75	.38	15	$14\frac{1}{4} \times 20\frac{1}{4}$	1.05	.60
15	15 x 19	.32	.85	.42	16	$15\frac{1}{4} \times 21\frac{1}{4}$	1.20	.66
16	16 x $20\frac{1}{4}$	.35	.95	.45	18	$17\frac{1}{4} \times 23\frac{1}{2}$	1.35	.75
18	18 x $21\frac{5}{8}$	.37	1.10	.50	20	$19\frac{1}{4} \times 25\frac{5}{8}$	1.45	.85
20	20 x $23\frac{7}{8}$	.44	1.20	.55	22	$21\frac{1}{4} \times 27\frac{3}{4}$	1.55	.90
22	22 x 26	.48	1.25	.60	24	$23\frac{3}{4} \times 30\frac{3}{8}$	1.90	1.05
24	24 x $28\frac{1}{4}$	.60	1.40	.70	.....	.....	.....	.....

Ring gaskets cover the faces of flanges inside of bolt holes, and will always be furnished unless otherwise ordered.

Full face gaskets, prices on application.

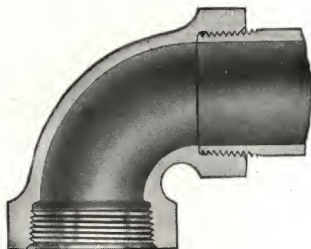
We can furnish gaskets made from any sheet rubber or metal that is manufactured.

Gaskets for male and female, tongued and grooved, or for special joints of any kind furnished to order.



## DRAINAGE FITTINGS

Screwed for Wrought Pipe



The attention of the trade is called to the largely increased number of sizes and the variety of drainage fittings that we now carry regularly in stock.

Our drainage fittings are made with a shoulder and are of the same inside diameter as wrought pipe; the pipe screws in up to the shoulder, thus making a continuous passage with no pocket and, consequently, the pipe cannot choke up.

On June 1, 1911, the list price on drainage fittings was revised, correcting many inequalities, with the result that prices have been generally reduced, and at the present time drainage fittings are so low as to make it possible to install a wrought pipe drainage system at comparatively little increased additional expense.

When not otherwise specified, these fittings will be coated with heated asphaltum.

### GALVANIZED DRAINAGE FITTINGS

We carry in stock and can furnish galvanized drainage fittings promptly.

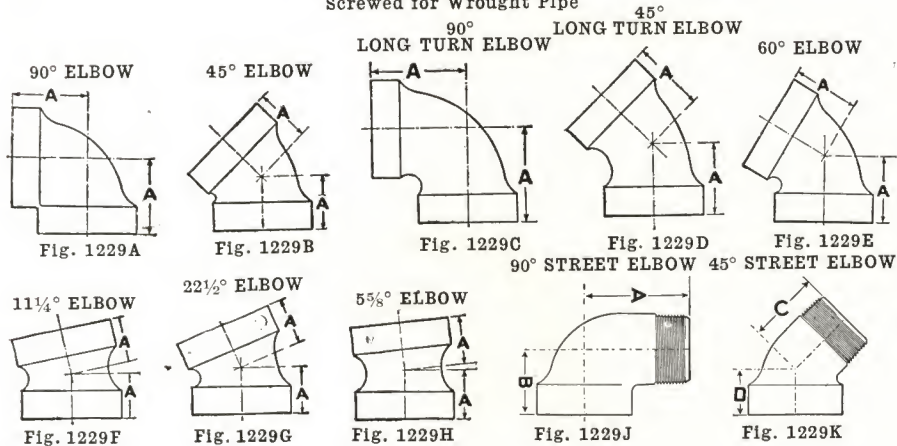
### MALLEABLE IRON DRAINAGE FITTINGS

We make drainage fittings of malleable iron from the regular patterns and are prepared to fill orders with reasonable promptness. They are sold at a special discount from the regular list.

All drainage fittings are recessed to allow easy entrance of the pipe.

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe



## 90° AND 45° ELBOWS

Size.....inches	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10	12	14
Dimens. A, 90°. inches	1 3/4	2 3/16	2 3/8	2 3/16	3 3/16	3 3/16	4 1/2	5 3/16	5 3/16	6 1/2	7 3/4	9	9 3/4
“ A, 45°. “	1 3/8	1 7/16	1 3/4	2 1/16	2 3/8	2 3/4	3 1/2	3 7/8	3 7/8	4 3/16	4 7/8	5 1/2	5 7/8
Price, 90° or 45°, Blk. each	.30	.38	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00	47.50	65.00
“ 90° “ 45°, Galv. “	.52	.67	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00	83.00	114.00

90° drainage elbows, size 1 1/2 x 1 1/4; black, 57 cents; galvanized, 1.00.

## 90° AND 45° LONG TURN ELBOWS

Size.....inches	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10	12	14
Dimens. A, 90°. inches	2 1/4	2 1/2	3 1/16	3 1/16	4 1/4	5 3/16	6 1/8	7 1/8	8 1/8	9	11	13	14 1/4
“ A, 45°. “	1 7/8	2 1/4	2 5/8	2 7/8	3 7/8	4 1/8	4 7/8	5 1/2	5 1/2	6	7 1/2	8 3/4	9 1/2
Price, 90° or 45°, Blk. each	*.35	.42	.65	1.40	1.75	2.75	5.25	7.50	13.50	19.00	38.00	57.50	75.00
“ 90° “ 45°, Galv. “	*.60	.72	1.15	2.45	3.10	4.80	9.20	13.15	23.50	33.25	66.50	100.00	130.00

\*45° long turn elbows not listed in 1 1/4-inch size.

## 60°, 22 1/2°, 11 1/4° AND 5 5/8° ELBOWS

Size.....inches	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10	12
Dimens. A, 60°.....inches	1 9/16	1 3/4	2	2 1/2	2 7/8	3 3/8	3 7/8	4 3/16	4 1/2	5 3/8	6 1/4	....
“ A, 11 1/4°..... “	1 1/2	1 3/2	1 3/2	1 3/2	1 3/2	2 1/8	2 3/8	2 1/2	2 5/8	2 5/8	3	....
“ A, 22 1/2°..... “	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2	2 5/16	2 5/16	3 1/4	3 9/16	3 7/8	4 3/16
“ A, 5 5/8°..... “	1 1/16	1 1/2	1 1/2	1 1/2	1 1/2	2	2 1/4	2 5/16	2 3/8	2 7/8	2 3/4	....
Price, Black.....each	.30	.38	.57	1.20	1.45	2.30	4.25	6.25	11.50	15.00	31.00	47.50
“ Galvanized..... “	.52	.67	1.00	2.10	2.55	4.00	7.40	11.00	20.00	26.25	54.00	83.00

90° elbows and 90° long turn elbows are tapped, pitched 1/4 inch to the foot.

## 90° AND 45° STREET ELBOWS

Size Inches	DIMENSIONS, INCHES				PRICE, EACH	
	A	B	C	D	Black	Galvanized
1 1/4	2 1/2	1 2/3	1 9/16	1 3/4	.35	.60
1 1/2	2 5/8	1 13/16	2	1 1/4	.40	.70
2	3	2 9/16	2 5/8	1 15/16	.60	1.10

Dimensions subject to a slight variation and change without notice.

## CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

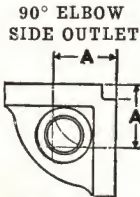
90° LONG TURN ELBOWS, WITH CLEANOUT  
WITHOUT BASE WITH BASE

Fig. 1232A

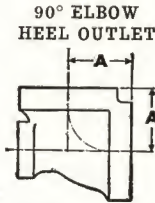


Fig. 1232B

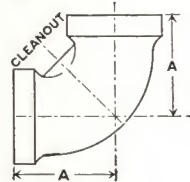


Fig. 1232C

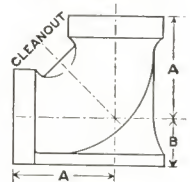


Fig. 1232D

Description .....	90° ELBOWS		90° LONG TURN ELBOWS WITH CLEANOUT	
	With Side Outlet	With Heel Outlet	Without Base	With Base
Size .....	4	4	4	4
Dimensions A .....	3 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>
Dimensions B .....	2	2	2	2 <sup>7</sup> / <sub>8</sub>
Size of Outlets .....	2	2	2	2
Price, Black .....	3.85	3.85	5.00	7.00
Galvanized .....	6.75	6.75	8.75	12.25

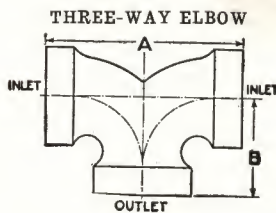


Fig. 1232E

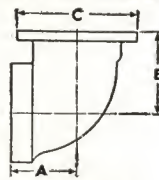
CLOSET ELBOW  
FLANGED ONE END

Fig. 1232F

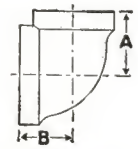
REDUCING  
CLOSET ELBOW

Fig. 1232G

### THREE-WAY ELBOWS

Size .....	1 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2	2 <sup>1</sup> / <sub>2</sub>	3	4
Dimensions A .....	5 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	7 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>8</sub>
Dimensions B .....	2 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>11</sup> / <sub>16</sub>	4 <sup>5</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>16</sub>
Price, Black .....	.75	.85	1.10	2.25	3.00	5.00
Galvanized .....	1.25	1.50	1.95	3.90	5.25	8.75
Size .....	4x3	5	5x4	6	6x4	6x5
Dimensions A .....	9 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>4</sub>	12 <sup>3</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>8</sub>
Dimensions B .....	4 <sup>5</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>4</sub>
Price, Black .....	5.50	7.50	8.25	13.50	15.00	15.00
Galvanized .....	9.65	13.15	14.50	23.50	26.25	26.25

### CLOSET ELBOWS

Size .....	4	4x5
Dimensions A .....	3 <sup>3</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>16</sub>
Dimensions B .....	4 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>16</sub>
Diameter of Flange .....	7	7
Price, Black .....	4.25	4.25
Galvanized .....	7.40	7.40

The inlets of three-way and closet elbows are tapped, pitched <sup>1</sup>/<sub>4</sub> inch to the foot.

The inlets on reducing fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice.



# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

BASIN CROSS

TEE

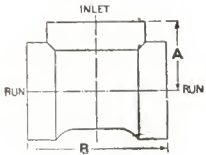


Fig. 1241A

BASIN TEE

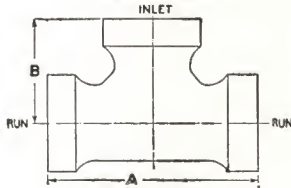


Fig. 1241B

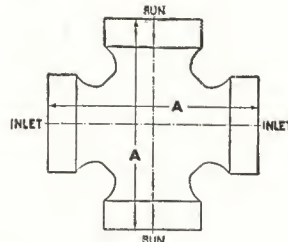


Fig. 1241C

## TEES

Size .....	1½	2	2x1¼	2x1½	2½	2½x2	3	3x1½	3x2
Dimensions A.....inches	2⅜	2⅝	....	2¼	2⅜	....	3⅜	....	3
" B....."	4⅜	4⅝	....	4⅞	5⅝	....	6⅜	....	5½
Price, Black .....	.55	.80	.90	.90	1.50	1.65	2.00	2.20	2.20
" Galvanized ... "	1.00	1.40	1.60	1.60	2.50	2.75	3.50	3.85	3.85

Size .....	4	4x2	4x3	5	5x2	5x3	5x4	6	7
Dimensions A.....inches	4	3⅞	3¾	4⅝	4⅜	4⅜	....	5⅞	5⅞
" B....."	8	6	7	9¼	6	6⅞	....	10⅞	11⅞
Price, Black .....	3.25	3.60	3.60	6.00	6.60	6.60	6.60	8.75	16.00
" Galvanized ... "	5.70	6.30	6.30	10.50	11.55	11.55	11.55	15.25	28.00

Size .....	8	10	12	12x8	12x10	14x8	14x10	14x12	....
Dimensions A.....inches	6½	7¾	9	....	....	....	....	....	....
" B....."	13	15½	18	....	....	....	....	....	....
Price, Black .....	21.00	43.00	60.00	65.00	65.00	85.00	85.00	85.00	....
" Galvanized ... "	37.00	75.00	100.00	110.00	110.00	145.00	145.00	145.00	....

## BASIN TEES

Size .....	1¼	1½	1½x1¼	2	2x1¼	2x1½	2½
Dimensions A.....inches	....	5⅜	5⅞	7	6¼	6½	8½
" B....."	....	2⅞	2⅞	3½	3⅞	3¼	4¼
Price, Black .....	.60	.70	.77	1.10	1.20	1.20	1.75
" Galvanized....."	1.00	1.22	1.35	1.95	2.10	2.10	3.00

## BASIN CROSSES

Size .....	1½	2	2x1½
Dimensions A.....inches	5⅜	7	6½
Price, Black .....	1.50	1.75	1.95
" Galvanized .....	2.50	3.10	3.40

Inlets of tees and basin tees and crosses are tapped, pitched ¼ inch to the foot. Inlets on reducing fittings are always the smallest opening.

## PARTITION CROSSES

Size .....	1¼x1½
Dimensions A.....inches	3½
" B....."	5½
Price, Black .....	1.25
" Galvanized .....	2.20

Partition crosses are made to supply a demand in certain localities, but may not be passed by inspectors everywhere.

Dimensions subject to a slight variation and change without notice.

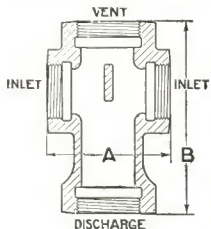


Fig. 1241D

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe  
REDUCING 90° "Y" BRANCH  
TEE PATTERN

90° "Y" BRANCH  
TEE PATTERN

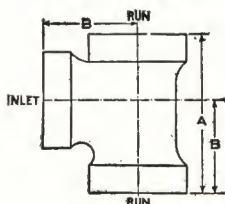


Fig. 1247A

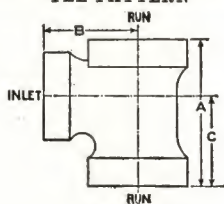


Fig. 1247B

60° "Y" BRANCH

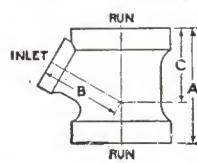


Fig. 1247C

## 90° "Y" BRANCHES, TEE PATTERN

Size.....inches	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	7	8	10
Dimens. A...inches	3 1/4	3 3/4	4 1/4	5 3/16	6 5/16	7 1/4	8 3/4	10 5/16	11 15/16	13 5/8	15 1/16	20
" B... "	1 5/16	2 1/4	2 1/2	3 1/16	3 11/16	4 1/4	5 3/16	6 1/8	7 1/8	8 1/8	9	11 3/8
Price, Black, each	.40	.45	.57	.85	1.80	2.20	3.50	6.50	9.50	17.50	23.00	47.00
" Galv.. "	.70	.80	1.00	1.50	3.15	3.85	6.15	11.35	16.50	30.50	40.00	82.00

## REDUCING 90° "Y" BRANCHES, TEE PATTERN

Size.....inches	1 1/4x1	1 1/2x1	1 3/4x1 1/4	2x1 1/4	2 1/2x1 1/2	2 3/4x1 1/4	2 3/4x1 1/2	2 1/2x2	3x1 1/4	3x1 1/2	3x2
Dimensions A...inches	....	....	3 7/8	....	4 5/8	....	4 7/8	5 1/2	....	5 1/16	5 11/16
" B... "	....	....	2 1/2	....	2 5/16	....	3 1/16	3 5/16	....	3 5/16	3 5/8
" C... "	....	....	2 3/8	....	2 11/16	....	2 5/8	3 1/4	....	2 15/16	3 5/16
Price, Black.....each	.50	.63	.63	.95	.95	2.00	2.00	2.00	2.40	2.40	2.40
" Galvanized. "	.90	1.10	1.10	1.65	1.65	3.50	3.50	3.50	4.20	4.20	4.20
Size.....inches	4x1 1/4	4x1 1/2	4x2	4x2 1/2	4x3	3x4	5x1 1/2	5x2	5x2 1/2	5x3	5x4
Dimensions A...inches	....	5 1/4	5 9/16	6 5/8	7 3/8	8 5/8	5 9/16	6 1/8	....	7 3/4	9 1/8
" B... "	....	3 3/16	4 1/16	4 7/16	4 3/4	5 5/16	4 3/8	4 5/8	....	5 1/4	5 11/16
" C... "	....	3	3 3/8	3 3/16	3 3/8	4 5/16	3 3/8	3 9/16	....	4 1/2	5 3/8
Price, Black.....each	3.85	3.85	3.85	3.85	3.85	3.85	7.15	7.15	7.15	7.15	7.15
" Galvanized "	6.75	6.75	6.75	6.75	6.75	6.75	12.50	12.50	12.50	12.50	12.50
Size.....inches	6x1 1/2	6x2	6x3	6x4	6x5	8x2	8x3	8x4	8x5	8x6	....
Dimensions A...inches	....	6 1/4	7 7/8	9 1/4	10 9/16	....	11 7/16	11 7/16	....	15 1/16	....
" B... "	....	5 1/8	5 3/4	6 3/16	6 5/8	....	7 1/4	7 9/16	....	8 1/2	....
" C... "	....	3 5/8	4 9/16	5 7/16	6 1/4	....	7 5/16	7 1/2	....	10	....
Price, Black.....each	10.50	10.50	10.50	10.50	10.50	25.50	25.50	25.50	25.50	25.00	....
" Galvanized "	18.50	18.50	18.50	18.50	18.50	44.50	44.50	44.50	44.50	44.50	....

The inlet of 90° "Y" branches is tapped, pitched 1/4 inch to the foot.

## 60° "Y" BRANCHES

Size.....inches	1 1/4x1 1/2	2x2	2 1/2x1 1/2	3x2	4x4	4x2	4x3	5x5	5x2
Dimensions A.....inches	4 5/8	5 1/2	4 5/16	6 7/16	9 3/8	6 11/16	....	11 1/8	....
" B..... "	2 5/8	3 1/4	3 7/16	4 1/8	5 3/4	4 3/4	....	6 3/4	....
" C..... "	2 5/8	3 1/4	2 5/16	3 5/16	5 3/4	4 5/16	....	6 3/4	....
Price, Black.....each	.65	.95	1.05	2.90	3.85	4.25	4.25	7.10	7.80
" Galvanized..... "	1.15	1.65	1.85	5.10	6.75	7.40	7.40	12.50	13.65
Size.....inches	5x3	5x4	6x6	6x2	6x4	6x5	8x4	8x6	....
Dimensions A.....inches	8 1/2	....	13	....	....	....	....	....	....
" B..... "	6	....	7 7/8	....	....	....	....	....	....
" C..... "	5 9/16	....	7 7/8	....	....	....	....	....	....
Price, Black.....each	7.80	7.80	10.50	11.50	11.50	11.50	27.50	27.50	....
" Galvanized..... "	13.65	13.65	18.50	20.00	20.00	20.00	48.00	48.00	....

Reducing sizes not listed take same list as reducing sizes having the same run.  
Dimensions subject to a slight variation and change without notice.

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

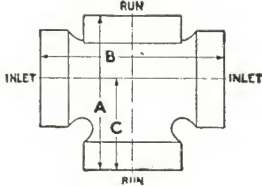
DOUBLE 90° "Y" BRANCH  
TEE PATTERN

Fig. 1249A

DOUBLE 45° "Y" BRANCH

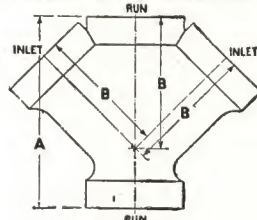


Fig. 1249B

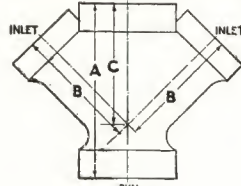
REDUCING  
DOUBLE 45° "Y" BRANCH

Fig. 1249C

## DOUBLE 90° "Y" BRANCHES, TEE PATTERN

Size.....inches	1	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimensions A....inches	3¼	3¾	4¼	5¾	6¾	7¼	8¾	10½	11½	13¾	15½	20
" B....."	3⅞	4½	5	6⅞	7¾	8½	10¾	12¼	14¼	16¼	18	22¾
" C....."	1½	2¼	2½	3¼	3¾	4¼	5¾	6¾	7½	8¾	9	11¾
Price, Black.....each	.60	.70	.85	1.30	2.85	3.40	5.25	9.50	14.00	25.00	36.00	60.00
" Galvanized... "	1.05	1.22	1.50	2.30	5.00	5.95	9.20	16.50	24.50	42.50	62.00	102.00

## REDUCING DOUBLE 90° "Y" BRANCHES, TEE PATTERN

Size.....inches	1½x1	1½x1¼	2x1¼	2x1½	2½x1½	2½x2	3x1½
Dimensions A....inches	....	....	3⅞	....	4⅝	....	5½
" B....."	....	....	5	....	5⅞	....	6⅝
" C....."	....	....	2⅜	....	2½	....	3¼
Price, Black.....each	.77	.95	1.50	1.50	3.15	3.15	3.75
" Galvanized....."	1.35	1.65	2.60	2.60	5.50	5.50	6.55

Size.....inches	3x2	4x2	5x4	6x2	6x4	6x5	8x6
Dimensions A....inches	5¼	5¾	9¼	6¼	9¼	10¾	15½
" B....."	7¼	8¼	11¾	10¼	12¾	13¼	17
" C....."	3¾	3¾	5¾	3¾	5¾	6¼	10
Price, Black.....each	3.75	5.75	10.50	15.50	15.50	15.50	40.00
" Galvanized....."	6.55	10.00	18.50	27.00	27.00	27.00	68.00

The inlets of double 90° "Y" branches are tapped, pitched ¼ inch to the foot.

## DOUBLE 45° "Y" BRANCHES

Size.....inches	1¼	1½	2	2½	3	4	5	6	7	8	10
Dimensions A....inches	5	5½	6¾	7¾	9	10⅞	12½	14¾	16½	18¾	20
" B....."	3¼	3¾	4½	5¾	6¾	7¾	9¾	10¾	12¼	13¾	16½
Price, Black.....each	.90	1.00	1.45	3.25	4.00	5.75	10.75	16.00	28.50	38.00	78.00
" Galvanized....."	1.60	1.75	2.55	5.70	7.00	10.00	18.80	28.00	50.00	66.50	137.00

## REDUCING DOUBLE 45° "Y" BRANCHES

Size.....inches	1½x1¼	2x1½	2½x1¼	2½x1½	3x1½	3x2	4x2	4x3	5x2
Dimensions A....inches	....	5⅞	....	6¾	6¾	7¾	7½	9¼	8¼
" B....."	....	4⅞	....	4⅝	5½	5¾	6¾	7¾	7¾
" C....."	....	4½	....	4¾	4½	5½	6	6¾	6¾
Price, Black.....each	1.10	1.60	3.60	3.60	4.40	4.40	6.35	6.35	11.75
" Galvanized....."	1.90	2.80	6.30	6.30	7.70	7.70	11.00	11.00	20.50

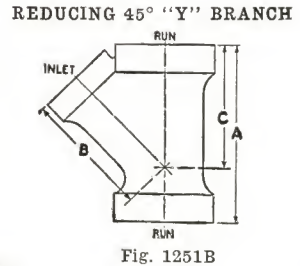
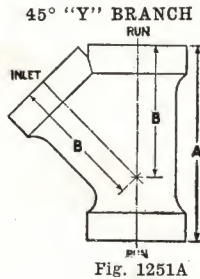
Size.....inches	5x3	5x4	6x2	6x3	6x4	7x6	8x4	8x6	....
Dimensions A....inches	9¾	11¾	8¾	....	11¾	....	11¾	14½	....
" B....."	7¾	8½	8¾	....	9¾	....	11	12¾	....
" C....."	7¾	8½	7¾	....	9¾	....	10¾	11¾	....
Price, Black.....each	11.75	11.75	17.50	17.50	17.50	31.50	42.00	42.00	....
" Galvanized....."	20.50	20.50	30.50	30.50	30.50	54.00	72.00	72.00	....

Dimensions subject to a slight variation and change without notice.



# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe



## 45° "Y" BRANCHES

Size .....	inches	1 1/4	1 1/2	2	2 1/2	3	4	5
Dimensions A .....	inches	5	5 1/2	6 7/8	7 7/8	9	10 7/8	12 5/8
"    B .....	"	3 1/4	3 5/8	4 5/8	5 3/8	6 3/8	7 1/8	9 3/8
Price, Black .....	each	.52	.65	.95	2.10	2.65	3.85	7.10
"    Galvanized .....	"	.90	1.15	1.65	3.70	4.65	6.75	12.50

Size .....	inches	6	7	8	10	12	14	....
Dimensions A .....	inches	14 3/4	16 11/16	18 3/8	20	24 1/4	28	....
"    B .....	"	10 3/4	12 1/4	13 9/16	16 1/8	19 5/8	21 1/2	....
Price, Black .....	each	10.50	19.00	25.00	52.00	75.00	95.00	....
"    Galvanized .....	"	18.50	33.25	44.00	91.00	130.00	165.00	....

## REDUCING 45° "Y" BRANCHES

Size .....	inches	1 1/2 x 1 1/4	2 x 1 1/4	2 x 1 1/2	2 1/2 x 1 1/4	2 1/2 x 1 1/2	2 1/2 x 2	3 x 1 1/4	3 x 1 1/2	3 x 2	3 x 2 1/2
Dimens. A .....	inches	....	....	5 7/8	....	6 7/8	7 1/8	....	6 5/8	7 3/8	8
"    B .....	"	....	....	4 1/8	....	4 5/8	5 1/8	....	5 1/8	5 3/8	5 3/8
"    C .....	"	....	....	4 1/16	....	4 9/16	4 5/8	....	4 5/8	5 1/16	5 1/16
Price, Black .....	each	.72	1.05	1.05	2.30	2.30	2.90	2.90	2.90	2.90	2.90
"    Galv .....	"	1.25	1.85	1.85	4.00	4.00	5.10	5.10	5.10	5.10	5.10

Size .....	inches	4 x 1 1/4	4 x 1 1/2	4 x 2	4 x 2 1/2	4 x 3	5 x 2	5 x 3	5 x 4	6 x 2	6 x 2 1/2
Dimens. A .....	inches	....	7 3/8	7 11/16	....	9 1/4	8 1/4	9 3/8	11 3/8	8 7/8	....
"    B .....	"	....	6 1/8	6 5/8	....	7 3/8	7 3/8	7 7/8	8 1/2	8 1/8	....
"    C .....	"	....	5 3/4	6	....	6 7/8	6 7/8	7 3/8	8 7/8	7 7/8	....
Price, Black .....	each	4.25	4.25	4.25	4.25	4.25	7.80	7.80	7.80	11.50	11.50
"    Galv .....	"	7.40	7.40	7.40	7.40	7.40	13.65	13.65	13.65	20.00	20.00

Size .....	inches	6 x 3	6 x 4	6 x 5	7 x 3	7 x 4	7 x 5	7 x 6	8 x 3	8 x 4	8 x 5
Dimens. A .....	inches	10	11 7/8	13	10	11 7/8	16 11/16	16 11/16	....	11 7/8	....
"    B .....	"	8 3/4	9 3/8	10	9 5/8	10 1/4	10 5/8	11 9/16	....	11	....
"    C .....	"	8 5/8	9 1/16	9 3/8	8 7/8	9 1/16	10 7/8	11 3/8	....	10 7/8	....
Price, Black .....	each	11.50	11.50	11.50	21.00	21.00	21.00	21.00	27.50	27.50	27.50
"    Galv .....	"	20.00	20.00	20.00	37.00	37.00	37.00	37.00	48.00	48.00	48.00

Size .....	inches	8 x 6	10 x 4	10 x 5	10 x 6	12 x 6	14 x 3	14 x 4	14 x 5	14 x 6	14 x 12
Dimens. A .....	inches	14 5/8	14	....	15 1/2	18	....	....	....	19 1/2	....
"    B .....	"	12 3/8	12 7/8	....	14 1/4	15 3/4	....	....	....	17 3/4	....
"    C .....	"	11 7/8	11 1/2	....	13 1/2	14 1/4	....	....	....	16 3/8	....
Price, Black .....	each	27.50	57.00	57.00	57.00	80.00	105.00	105.00	105.00	105.00	105.00
"    Galv .....	"	48.00	97.00	97.00	97.00	140.00	175.00	175.00	175.00	175.00	175.00

The inlets on reducing fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice.

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

90° LONG TURN "Y" BRANCH  
TEE PATTERN

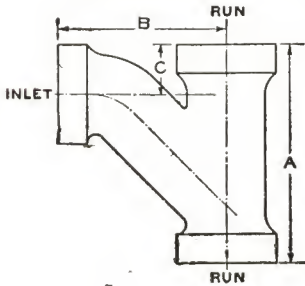


Fig. 1252A

REDUCING 90°  
LONG TURN "Y" BRANCH  
TEE PATTERN

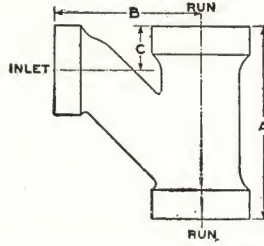


Fig. 1252B

90° LONG TURN "Y" BRANCHES, TEE PATTERN

Size.....inches	1¼	1½	2	2½	3	4	5	6	7	8
Dimensions A.....inches	4¾	5¾	7¼	8¼	9¾	13¾	15¾	18¼	21½	24¾
" B....."	3½	4½	5¾	6¼	7½	9¾	12¼	14¾	16¾	19½
" C....."	1¾	1¼	1½	2	2½	2¾	3½	4½	4¾	5¼
Price, Black.....each	.57	.70	1.10	2.40	3.35	6.00	9.50	20.00	30.00	40.00
" Galvanized....."	1.00	1.22	1.95	4.20	5.85	10.50	16.50	35.00	52.50	70.00

REDUCING 90° LONG TURN "Y" BRANCHES, TEE PATTERN

Size.....inches	1¼x1	1½x1	1½x1¼	2x1	2x1¼	2x1½	2½x1	2½x1¼	2½x1½
Dimensions A.....inches	4¼	4½	5¼	....	....	5¾	....	....	5¾
" B....."	3½	3¾	3¾	....	....	4¾	....	....	4¾
" C....."	1	1	1¾	....	....	1½	....	....	1½
Price, Black.....each	.63	.80	.80	1.20	1.20	1.20	2.65	2.65	2.65
" Galvanized....."	1.10	1.40	1.40	2.10	2.10	2.10	4.65	4.65	4.65
Size.....inches	2½x2	3x1½	3x2	3x2½	4x1½	4x2	4x2½	4x3	5x1½
Dimensions A.....inches	7¾	5½	7¾	....	6¼	7¼	8½	10	6½
" B....."	5¾	5	6¼	....	5¾	6½	7¼	8¼	6
" C....."	1½	1½	1¾	....	1½	1½	2	2¾	1¾
Price, Black.....each	2.65	3.75	3.75	3.75	6.60	6.60	6.60	6.60	10.50
" Galvanized....."	4.65	6.55	6.55	6.55	11.55	11.55	11.55	11.55	18.50
Size.....inches	5x2	5x2½	5x3	5x4	6x2	6x3	6x4	6x5	7x3
Dimensions A.....inches	7¾	....	10¼	13	7¾	10¾	13¼	16¼	10¾
" B....."	7¼	....	8½	10¾	7¾	9¼	11	12¾	9¾
" C....."	1½	....	2¾	2¾	1½	2½	2¾	3½	2½
Price, Black.....each	10.50	10.50	10.50	10.50	22.00	22.00	22.00	22.00	33.00
" Galvanized....."	18.50	18.50	18.50	18.50	38.50	38.50	38.50	38.50	58.00
Size.....inches	7x4	7x5	7x6	8x3	8x4	10x4	12x5	.....	.....
Dimensions A.....inches	13¾	....	....	10¾	13¾	14	17	.....	.....
" B....."	11½	....	....	10¼	12	13	15½	.....	.....
" C....."	2¾	....	....	2¾	2¾	3	4	.....	.....
Price, Black.....each	33.00	33.00	33.00	44.00	44.00	60.00	85.00	.....	.....
" Galvanized....."	58.00	58.00	58.00	77.00	77.00	102.00	150.00	.....	.....

The inlet of 90° long turn "Y" branches is tapped, pitched ¼ inch to the foot.

The inlets on reducing fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice.

## CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

DOUBLE 90° LONG TURN  
"Y" BRANCH, TEE PATTERN

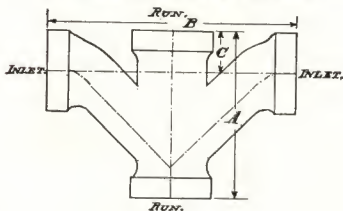


Fig. 1254A

REDUCING DOUBLE 90° LONG TURN  
"Y" BRANCH, TEE PATTERN

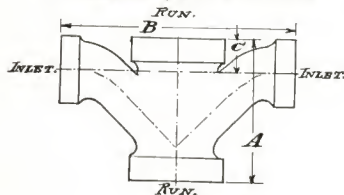


Fig. 1254B

DOUBLE 90° LONG TURN "Y" BRANCHES, TEE PATTERN

Size .....	inches	1 1/4	1 1/2	2	2 1/2	3
Dimensions A .....	inches	4 3/4	5 3/8	7 1/16	8 1/4	9 3/16
" B .....	"	7 1/4	8 1/4	10 7/8	12 1/2	15
" C .....	"	1 3/16	1 1/4	1 5/8	2	2 5/16
Price, Black .....	each	1.00	1.10	1.75	3.60	5.00
" Galvanized .....	"	1.75	1.95	3.10	6.30	8.75

Size .....	inches	4	5	6	7	8
Dimensions A .....	inches	13 3/4	15 3/4	18 11/16	21 5/8	24 9/16
" B .....	"	19 3/4	24 1/2	29 1/8	33 3/4	38 5/8
" C .....	"	2 7/8	3 1/2	4 1/8	4 3/4	5 1/4
Price, Black .....	each	9.00	14.00	30.00	45.00	60.00
" Galvanized .....	"	15.75	24.50	52.50	79.00	105.00

REDUCING DOUBLE 90° LONG TURN "Y" BRANCHES, TEE PATTERN

Size .....	inches	1 1/4x1	1 1/2x1	1 3/4x1 1/4	2x1 1/4	2x1 1/2	2 1/2x1 1/4	2 1/2x1 1/2	3x1 1/2
Dimensions A .....	inches	4 1/4	4 1/2	5 1/8	5 3/4	5 3/4	5 3/4	5 3/4	5 5/16
" B .....	"	7	7 1/4	7 3/4	8 3/4	8 3/4	9 1/8	9 1/8	10
" C .....	"	1	1	1 3/16	1 5/16	1 5/16	1 5/16	1 5/16	1 5/16
Price, Black .....	each	1.10	1.25	1.25	1.90	1.90	4.00	4.00	5.50
" Galvanized .....	"	1.90	2.25	2.25	3.35	3.35	7.00	7.00	9.65

Size .....	inches	3x2	4x2	4x3	5x4	6x2	6x4	6x5	....
Dimensions A .....	inches	7 9/16	7 11/16	10	13	7 5/16	13 1/16	16 1/16	....
" B .....	"	12 1/8	13 1/4	16 1/8	20 7/8	15 1/2	22	25 5/8	....
" C .....	"	1 5/8	1 5/8	2 3/8	2 7/8	1 5/8	2 7/8	3 1/2	....
Price, Black .....	each	5.50	10.00	10.00	15.50	33.00	33.00	33.00	....
" Galvanized .....	"	9.65	17.50	17.50	27.00	58.00	58.00	58.00	....

The inlets of double 90° long turn "Y" branches are tapped, pitched 1/4 inch to the foot.

The inlets on reducing fittings are always the smallest openings.

Dimensions subject to a slight variation and change without notice.



# CAST IRON DRAINAGE FITTINGS

## SCREWED FOR WROUGHT PIPE

LONG TURN 90° "Y" BRANCHES,  
WITH AUXILIARY INLETS  
WITH SIDE INLETS WITH SIDE AND  
INLETS TOP INLETS

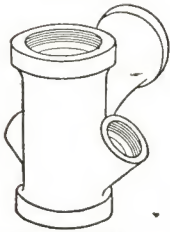


Fig. 10285A

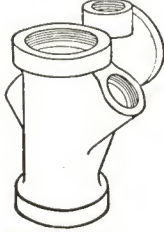


Fig. 10285B

90° "Y" BRANCHES (CLOSET TEES)  
WITH AUXILIARY INLETS WITH 45°  
WITH VENTS INLETS AUXILIARY INLETS

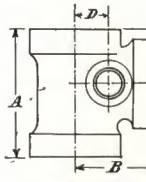


Fig. 10285C

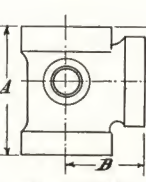


Fig. 10285D

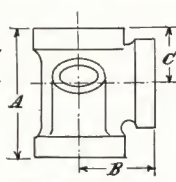


Fig. 10285E

## LONG TURN 90° "Y" BRANCHES, WITH AUXILIARY INLETS

Size .....	inches	3	4	5x4	6x4
Price, with 2-in. Inlet, Right or Left Side, Black .....	each	5.25	9.00	12.00	23.00
" " 2 " " " Galvanized. ....	"	9.20	15.75	21.00	40.00
" " 2 " " Both Sides, Black .....	"	5.75	10.00	13.00	25.00
" " 2 " " " Galvanized .....	"	10.00	17.50	22.75	44.00
" " 2 " " Right or Left Side and 2-in. Top Inlet, Black ..	"	.....	10.00	13.00	25.00
" " 2 " " " " Galv. ....	"	.....	17.50	22.75	44.00
" " 2 " " Both Sides and 2-in. Top Inlet, Blk .....	"	.....	11.00	14.50	28.00
" " 2 " " " " Galv. ....	"	.....	19.25	25.50	49.00

## 90° "Y" BRANCHES WITH VENTS—(CLOSET TEES)

Size .....	inches	4
Dimensions A .....	inches	8 $\frac{3}{4}$
" B .....	"	5 $\frac{3}{16}$
" C .....	"	3 $\frac{9}{16}$
" D .....	"	2 $\frac{5}{16}$
Price, with 2-inch Vent on Branch, on Right or Left Side .....	each	5.75
" " 2 " " " " " " " " Galvanized .....	"	10.00

## 90° "Y" BRANCHES WITH AUXILIARY INLETS—(CLOSET TEES)

Size .....	inches	4
Dimensions A .....	inches	8 $\frac{3}{4}$
" B .....	"	5 $\frac{3}{16}$
" C .....	"	3 $\frac{9}{16}$
Price, with 2-inch Inlet on Body on Right or Left Side .....	each	5.75
" " 2 " " " " " " " " Galvanized .....	"	10.00

## 90° "Y" BRANCHES WITH 45° AUXILIARY INLETS—(CLOSET TEES)

Size .....	inches	4
Dimensions A .....	inches	8 $\frac{3}{4}$
" B .....	"	5 $\frac{3}{16}$
" C .....	"	3 $\frac{9}{16}$
Price, with 2-inch, 45° Inlet on Body, on Right or Left Side .....	each	6.35
" " 2 " 45° " " " " " " " " Galvanized .....	"	11.00

Dimensions subject to a slight variation and change without notice.

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

SPECIAL UPRIGHT "Y" BRANCH

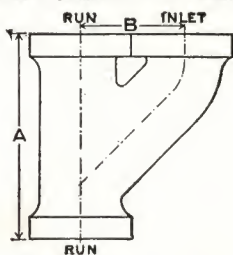


Fig. 1268A

OFFSET

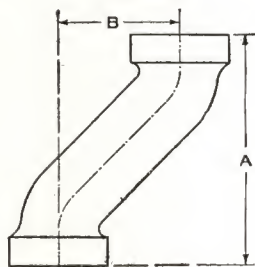


Fig. 1268B

INCREASER

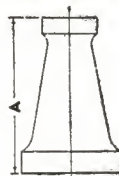


Fig. 1268C

## SPECIAL UPRIGHT "Y" BRANCHES

Size .....	inches	2x1½	2½x1½	2½x2	3x2	3x3	4x2	4x4
Dimensions A .....	inches	5⅞	5⅞	7⅞	9⅞	9⅞	7⅞	11⅜
"    B .....	"	2⅞	3⅞	3⅞	4⅞	4⅞	4⅞	5⅞
Price, Black .....	each	2.90	4.50	4.50	6.00	5.50	8.75	8.00
"    Galvanized .....	"	5.10	7.75	7.75	10.50	9.75	15.25	14.00

## OFFSETS

Size .....	inches	2	2	2	2	3	3	3
Offset B .....	inches	4	6	8	10	4	6	8
Length A .....	"	7½	9½	11½	13½	8¾	10¾	12¾
Price, Black .....	each	2.15	2.40	2.60	2.85	3.35	4.00	4.75
"    Galvanized .....	"	3.75	4.20	4.55	5.00	5.85	7.00	8.30
Size .....	inches	3	4	4	4	4	4	5
Offset B .....	inches	10	4	6	8	10	12	6
Length A .....	"	14¾	9¾	11¾	13¾	15¾	17¾	12½
Price, Black .....	each	5.50	5.00	5.75	6.50	7.50	8.50	9.00
"    Galvanized .....	"	9.65	8.75	10.00	11.35	13.15	15.00	15.75
Size .....	inches	5	5	5	6	6	6	6
Offset B .....	inches	8	10	12	6	8	10	12
Length A .....	"	14⅝	16⅝	18⅝	13⅝	15⅝	17⅝	19⅝
Price, Black .....	each	10.00	11.00	12.00	12.50	13.50	14.50	15.50
"    Galvanized .....	"	17.50	19.25	21.00	22.00	23.50	25.50	27.00

## INCREASERS

Size .....	inches	3x2	4x2	4x3	5x2	5x3	5x4	6x4	6x5
Dimensions A .....	inches	9	9	9	9	9	9	9	9
Price, Black .....	each	2.50	3.75	3.75	5.50	5.50	5.50	6.50	6.50
"    Galvanized .....	"	4.40	6.55	6.55	9.65	9.65	9.65	11.35	11.35
Size .....	inches	7x4	7x6	8x4	8x6	10x8	12x10	14x6	14x8
Dimensions A .....	inches	12.00	12.00	15.00	15.00	20.00	40.00	55.00	55.00
Price, Black .....	each	12.00	12.00	15.00	15.00	20.00	40.00	55.00	55.00
"    Galvanized .....	"	20.00	20.00	26.25	26.25	35.00	70.00	95.00	95.00

Dimensions subject to a slight variation and change without notice.

# CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe

"S" TRAP

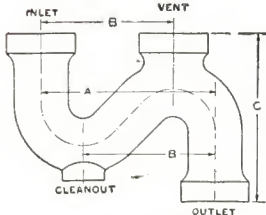


Fig. 1271A

HALF "S" TRAP

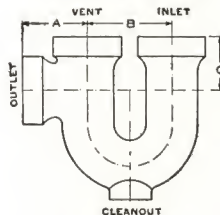


Fig. 1271B

RUNNING TRAP

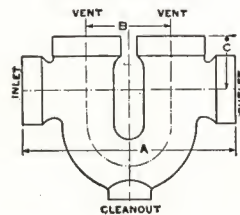


Fig. 1271C

## "S" TRAPS

Size.....inches	2	3	4	5	6
Dimensions A.....inches	8 $\frac{1}{4}$	10 $\frac{3}{4}$	14 $\frac{1}{8}$	16 $\frac{3}{4}$	20 $\frac{1}{4}$
" B....."	6 $\frac{1}{4}$	8 $\frac{1}{6}$	10 $\frac{5}{8}$	12 $\frac{9}{16}$	15 $\frac{3}{16}$
" C....."	8	11 $\frac{1}{4}$	13 $\frac{3}{4}$	16 $\frac{7}{8}$	19 $\frac{3}{4}$
Size of Cleanout....."	1	1 $\frac{1}{4}$	2	2	2
" Vents....."	2	3	4	4	4
Price, Black.....each	4.00	9.25	14.00	21.00	36.00
" Galvanized....."	7.00	16.00	24.00	37.00	63.00

## HALF "S" TRAPS

Size.....inches	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	3	4	5	6	7	8
Dimensions A.....inches	2 $\frac{5}{16}$	2 $\frac{1}{2}$	3 $\frac{1}{16}$	4 $\frac{3}{16}$	5 $\frac{1}{8}$	6 $\frac{1}{16}$	6 $\frac{9}{16}$	7 $\frac{3}{4}$	8 $\frac{15}{16}$
" B....."	3 $\frac{1}{8}$	3 $\frac{3}{8}$	4	5 $\frac{3}{8}$	7	8 $\frac{3}{8}$	10 $\frac{1}{8}$	11 $\frac{1}{4}$	12 $\frac{3}{8}$
" C....."	2	2 $\frac{1}{4}$	2 $\frac{9}{16}$	3 $\frac{1}{2}$	4 $\frac{3}{16}$	4 $\frac{3}{4}$	5 $\frac{7}{16}$	6 $\frac{1}{8}$	6 $\frac{3}{4}$
Size of Vent....."	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	3	4	4	4	5	6
" Cleanout....."	1	1	1	1 $\frac{1}{4}$	2	2	2	2	3
Price, Black.....each	1.55	1.70	2.20	5.00	10.00	21.50	32.50	40.00	55.00
" Galvanized...."	2.70	3.00	3.85	8.75	17.50	37.50	57.00	70.00	95.00

## RUNNING TRAPS

Size.....inches	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	3	4	5
Dimensions A.....inches	7 $\frac{3}{4}$	8 $\frac{3}{8}$	10 $\frac{1}{8}$	13 $\frac{3}{4}$	17 $\frac{1}{4}$	20 $\frac{1}{2}$
" B....."	3 $\frac{1}{8}$	3 $\frac{3}{8}$	4	5 $\frac{3}{8}$	7	8 $\frac{3}{8}$
" C....."	2	2 $\frac{1}{4}$	2 $\frac{9}{16}$	3 $\frac{1}{2}$	4 $\frac{3}{16}$	4 $\frac{3}{4}$
Size of Vents....."	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	3	4	4
" Cleanout....."	1	1	1	1 $\frac{1}{4}$	2	2
Price, Black.....each	2.40	2.70	3.30	5.50	9.75	24.50
" Galvanized....."	4.20	4.70	5.75	9.50	17.00	43.00

Size.....inches	6	7	8	10	12	14
Dimensions A.....inches	23 $\frac{1}{4}$	26 $\frac{3}{4}$	30 $\frac{1}{4}$	36 $\frac{1}{4}$	41 $\frac{7}{8}$	45
" B....."	10 $\frac{1}{8}$	11 $\frac{1}{4}$	12 $\frac{3}{8}$	14 $\frac{3}{4}$	17	18 $\frac{1}{2}$
" C....."	5 $\frac{7}{16}$	6 $\frac{1}{8}$	6 $\frac{3}{4}$	8 $\frac{1}{4}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$
Size of Vents....."	4	5	6	6	8	8
" Cleanout....."	2	2	3	3	3	4
Price, Black.....each	33.50	50.00	65.00	115.00	180.00	300.00
" Galvanized....."	58.50	87.50	115.00	200.00	300.00	500.00

The outlet of half "S" traps and inlet and outlet of running traps, are tapped, pitched  $\frac{1}{4}$  inch to the foot.

Dimensions subject to a slight variation and change without notice.



## CAST IRON DRAINAGE FITTINGS

Screwed for Wrought Pipe  
RECESSED CLOSET FLANGE

CLOSET FLANGE

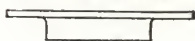


Fig. 1283A



Fig. 1283B

BRASS CLOSET FLANGE



Fig. 1283C

### CLOSET FLANGES

Size .....	inches	4
Diameter of Flange .....	inches	7
Price, Black .....	each	1.35
" Galvanized .....	"	2.35

### RECESSED CLOSET FLANGES—FOR ASBESTOS RING PACKING

Size .....	inches	4
Diameter of Flange .....	inches	7
Price, Black .....	each	1.35
" Galvanized .....	"	2.35

### BRASS CLOSET FLANGES

Size .....	inches	4
Diameter of Flange .....	inches	7
Price .....	each	7.00

TUCKER CONNECTION

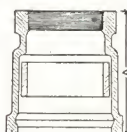


Fig. 1283D

ROOF CONNECTION

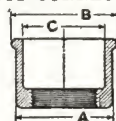


Fig. 1283E

BRASS SOLDER NIPPLE

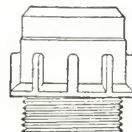


Fig. 1283F

### TUCKER CONNECTIONS

Size .....	inches	2	3	4	5	6	8
Dimensions A .....	inches	4 1/2	4 3/4	7	7	7	7
Price, Black .....	each	.80	2.00	3.25	6.00	8.75	21.00
" Galvanized .....	"	1.40	3.50	5.70	10.50	15.25	37.00

The inlets on reducing fittings are always the smallest openings.

### ROOF CONNECTIONS

Size .....	inches	2	3	4	5	6
Dimensions A .....	inches	3 1/2	4 9/16	5 5/8	6 11/16	7 3/4
" B .....	"	3 9/16	4 5/16	6	7 1/16	8 3/16
" C .....	"	3	4 1/8	5 1/8	6	7 1/8
Price, Black .....	each	1.15	1.20	1.50	2.00	4.25
" Galvanized .....	"	2.00	2.10	2.60	3.50	7.40

### BRASS SOLDER NIPPLES

Size .....	inches	1	1 1/4	1 1/2	2	3	4	5
Price .....	each	.80	.90	1.05	1.50	2.75	4.00	9.00

Dimensions subject to a slight variation and change without notice.

**BRASS, COPPER AND BRONZE PIPE****SEAMLESS BRASS PIPE**

Iron Pipe Sizes—Regular and Extra Heavy

Also Table Showing Actual Sizes and Approximate Weights per Foot

Iron Pipe Size Inches	REGULAR THICKNESS				EXTRA HEAVY				Price per Pound in Cents Advance on Base Price
	Outside Diameter Inches	Inside Diameter Inches	Thick- ness Inches	Weight per Foot Pounds	Outside Diameter Inches	Inside Diameter Inches	Thick- ness Inches	Weight per Foot Pounds	
1/8	.405	.281	.032	.246	.405	.205	.100	.353	8
1/4	.540	.375	.083	.437	.540	.294	.123	.593	7
3/8	.675	.494	.090	.612	.675	.421	.127	.805	2
1/2	.840	.625	.107	.911	.840	.542	.149	1.191	1
3/4	1.050	.822	.114	1.235	1.050	.736	.157	1.622	Base
1	1.315	1.062	.126	1.740	1.315	.951	.182	2.386	"
1 1/4	1.660	1.368	.146	2.557	1.660	1.272	.194	3.291	"
1 1/2	1.900	1.600	.150	3.037	1.900	1.494	.203	3.986	"
2	2.375	2.062	.157	4.017	2.375	1.933	.221	5.508	"
2 1/2	2.875	2.500	.188	5.830	2.875	2.315	.280	8.407	"
3	3.500	3.062	.219	8.314	3.500	2.892	.304	11.24	"
3 1/2	4.	3.500	.250	10.85	4.	3.358	.321	13.66	1
4	4.500	4.	.250	12.29	4.500	3.818	.341	16.41	2
4 1/2	5.	4.500	.250	13.74	5.	4.250	.375	20.07	4
5	5.563	5.062	.250	15.40	5.563	4.813	.375	22.51	6
6	6.625	6.125	.250	18.44	6.625	5.750	.437	31.32	7

Stock lengths are all 12 feet. Mill lengths run from 12 to 16 feet.

**SEAMLESS COPPER AND BRONZE PIPE**

Iron Pipe Sizes—Regular and Extra Heavy

Also Table Showing Approximate Weights per Foot

Iron Pipe Size..... inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Approximate Weight, per Lineal Foot, Regular Thickness	.259	.459	.644	.958	1.298	1.829	2.689	3.193	4.224	6.130
Approximate Weight, per Lineal Foot, Extra Heavy	.371	.624	.847	1.253	1.706	2.509	3.460	4.191	5.791	8.839
Price, per Pound, in Cents, Advance on Base Prices	8	7	2	1	Base	Base	Base	Base	Base	Base

Diameters and thickness regular and extra heavy copper pipe, same as corresponding sizes of regular and extra heavy brass pipe.

Stock lengths are all 12 feet. Mill lengths run from 12 to 16 feet.

Polishing, nickel-plating and threading on application.

## RAILING FITTINGS

## FINISHED BRASS

No. 1  
ELBOW

Fig. 670A

No. 2  
SIDE OUTLET ELBOW

Fig. 670B

No. 3  
TEE

Fig. 670C

No. 4  
SIDE OUTLET TEE

Fig. 670D

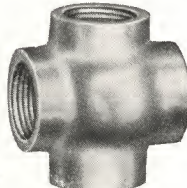
No. 5  
CROSS

Fig. 670E

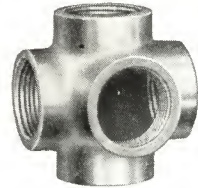
No. 6  
SIDE OUTLET CROSS

Fig. 670F

No. 7  
FLANGE

Fig. 670G

No. 8  
ACORN

Fig. 670H

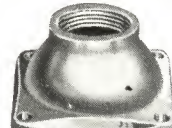
No. 9  
FLOOR FLANGE

Fig. 670J

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, No. 1, Elbows .....	each	.40	.60	.80	1.20	1.60	2.50
" " 2, Side Outlet Elbows .....	"	.75	1.00	1.10	1.70	2.00	3.00
" " 3, Tees .....	"	.60	.85	1.10	1.70	2.00	3.00
" " 4, Side Outlet Tees .....	"	1.05	1.25	1.50	2.00	2.40	3.50
" " 5, Crosses .....	"	1.05	1.25	1.50	2.00	2.40	3.50
" " 6, Side Outlet Crosses .....	"	1.20	1.45	1.70	2.25	3.00	4.00
" " 7, Flanges .....	"	.26	.35	.40	.70	.95	1.30
" " 8, Acorns .....	"	.60	.90	1.00	1.35	1.75	2.50
" " 9, Floor Flanges .....	"	.60	.90	1.00	1.35	1.75	2.50

In ordering railing fittings, describe kind wanted by number and size. Railing fittings will always be furnished with all openings tapped right-hand, unless otherwise specified. Railing fittings tapped right and left or left-hand will be charged for at 15 per cent additional, net.



## ROUGH BRASS FITTINGS

### MALLEABLE IRON PATTERN, IRON PIPE SIZE

For Steam Working Pressure up to 125 Pounds

ELBOW



Fig. 733A

TEE



Fig. 733B

CROSS

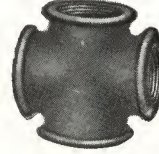


Fig. 733C

STANDARD

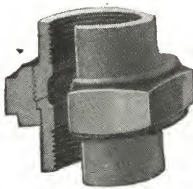


Fig. 733D

UNIONS

OCTAGON

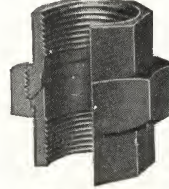


Fig. 733E

Effective January 15, 1915

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90°.....each	.12	.15	.20	.28	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00
“ Reducing.....“	.19	.25	.35	.50	.80	1.10	1.50	2.50	4.25	7.50	10.00	12.50	
“ 45°.....“	.16	.20	.25	.31	.40	.63	.90	1.20	2.00	3.50	6.00	8.00	10.00
“ Street.....“	.25	.27	.33	.48	.63	.85	1.50	2.00	3.25	6.00	10.00	....	....
“ Side Outlet.....“	.45	.60	.85	1.20	1.90	2.75	3.60	6.00	10.50	18.00	....	....	....
“ Drop, Female.....“	.35	.45	.65	1.05	1.50	2.00	3.40	....	....	....	....	....	....
Tees.....“	.17	.21	.28	.40	.55	.85	1.25	1.70	2.80	5.00	8.50	11.00	14.00
“ Reducing.....“	.25	.35	.50	.70	1.05	1.55	2.10	3.50	6.25	10.50	14.00	17.50	
“ Drop, Single Ear.....“	.43	.57	.80	1.25	1.85	2.50	4.20	....	....	....	....	....	....
“ “ Double “.....“	.58	.74	1.05	1.70	2.45	3.30	5.60	....	....	....	....	....	....
“ Side Outlet.....“	1.20	1.65	2.50	3.75	5.00	8.50	....	....	....	....	....	....	....
Crosses.....“	.25	.30	.40	.55	.80	1.25	1.80	2.40	4.00	7.00	12.00	16.00	20.00
“ Reducing.....“	.38	.50	.70	1.00	1.55	2.25	3.00	5.00	8.75	15.00	20.00	25.00	
Couplings.....“	.10	.13	.17	.25	.37	.55	.80	1.00	1.60	2.50	3.50	5.25	7.00
“ R. and L.....“	.13	.17	.22	.30	.45	.70	1.00	1.30	2.00	3.10	4.50	....	....
“ Reducing.....“	.15	.20	.28	.40	.60	.90	1.10	1.75	2.75	4.00	6.00	8.00	
Bushings, Regular.....“	.10	.12	.15	.22	.35	.50	.70	1.00	1.50	2.50	3.75	5.00	
“ Faced.....“	.12	.15	.19	.27	.44	.62	.87	1.25	1.85	3.10	4.75	6.25	
Plugs, Regular.....“	.08	.10	.12	.15	.20	.30	.45	.60	.95	1.50	2.25	3.75	5.00
“ Solid.....“	.18	.22	.30	.45	.80	1.20	1.90	3.00	4.50	7.50	10.00	....	....
“ Countersunk.....“	.22	.30	.45	.65	.90	1.40	....	....	....	....	....	....	....
Caps.....“	.10	.13	.16	.20	.30	.42	.60	.80	1.25	2.50	3.50	5.50	7.00
Locknuts.....“	.10	.10	.12	.15	.20	.28	.40	.55	.80	1.75	2.75	4.00	5.00
Return Bends, Close.....“	.30	.40	.55	.70	1.00	1.25	1.80	2.50	4.25	7.00	10.00	....	....
“ “ Open.....“	.40	.50	.60	.80	1.10	1.40	2.15	3.00	4.75	8.25	11.00	....	....
“Y” Bends.....“	.60	.75	1.10	1.65	2.50	3.30	5.50	9.50	16.00	21.00	26.00	....	....
Unions, Standard, Rough..“	.40	.50	.65	.85	1.15	1.60	2.25	2.70	4.00	7.50	11.50	....	....
“ “ Semifinished.....“	.45	.55	.75	.95	1.30	1.75	2.50	3.00	4.50	8.25	12.75	22.50	30.00
“ Octagon, Rough.....“	.60	.65	.85	1.10	1.50	2.00	2.80	3.60	5.25	9.00	14.00	22.50	30.00
Nipples, Close.....“	.11	.13	.15	.23	.28	.37	.60	.70	1.00	1.70	2.50	4.00	4.75

Prices covering brass nipples in long sizes, on application.

## FINISHED BRASS FITTINGS

### MALLEABLE IRON PATTERN, IRON PIPE SIZE

For Steam Working Pressure up to 125 Pounds

ELBOW



Fig. 732A

TEE

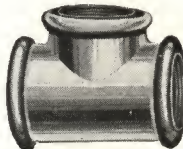


Fig. 732B

CROSS

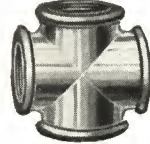


Fig. 732C

UNIONS

STANDARD

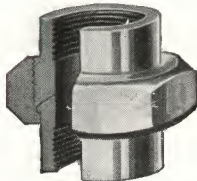


Fig. 732D

OCTAGON

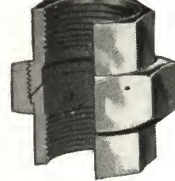


Fig. 732E

Effective, January 15, 1915

Size .....	inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Elbows, 90° .....	each	.30	.35	.45	.56	.75	1.10	1.55	2.00	3.00	5.50	9.00	14.00	17.50
" Reducing .....	"	..	.44	.55	.70	.95	1.40	1.90	2.50	3.75	6.75	11.25	17.50	22.00
" 45° .....	"	.38	.45	.55	.66	.85	1.23	1.70	2.20	3.25	6.00	9.75	15.50	19.50
" Street .....	"	.47	.52	.63	.83	1.08	1.45	2.30	3.00	4.50	8.50	13.75	..	..
" Side Outlet .....	"	..	1.05	1.35	1.70	2.25	3.30	4.70	6.00	9.00	16.50	27.00	..	..
" Drop, Female ..	"	..	..	.85	1.05	1.40	2.00	2.80	3.60	5.40	..	..	..	..
Tees .....	"	.42	.49	.63	.80	1.05	1.50	2.15	2.80	4.20	7.75	12.75	19.50	24.50
" Reducing .....	"	..	.60	.77	1.00	1.30	1.85	2.65	3.50	5.25	9.75	15.80	24.50	30.50
" Drop, Single Ear ..	"	..	..	1.13	1.37	1.80	2.55	3.65	4.70	7.00	..	..	..	..
" " Double " ..	"	..	..	1.28	1.54	2.05	3.00	4.25	5.50	8.40	..	..	..	..
" Side Outlet .....	"	..	..	..	2.05	2.70	3.90	5.70	7.40	11.50	..	..	..	..
Crosses .....	"	.60	.70	.90	1.10	1.50	2.20	3.10	4.00	6.00	11.00	18.00	28.00	35.00
" Reducing .....	"	..	.88	1.10	1.40	1.85	2.75	3.85	5.00	7.50	13.75	22.50	35.00	44.00
Couplings .....	"	.24	.28	.36	.46	.63	.90	1.30	1.60	2.35	4.00	5.75	9.75	12.50
" R. and L. ....	"	.31	.37	.47	.58	.80	1.15	1.65	2.10	3.00	5.10	7.50	..	..
" Reducing .....	"	..	.35	.45	.56	.75	1.05	1.55	1.90	2.75	4.75	7.00	12.00	15.50
Bushings, Regular .....	"	..	.22	.27	.35	.47	.70	1.00	1.40	2.00	3.00	4.50	6.25	8.00
Plugs, Regular .....	"	.23	.30	.37	.43	.55	.75	1.00	1.30	1.95	3.00	4.25	6.25	8.00
" Solid .....	"	..	..	.43	.50	.65	.90	1.35	1.90	2.90	4.50	6.50	10.00	13.00
" Countersunk .....	"	..	..	..	.42	.55	.80	1.15	1.55	2.25	..	..	..	..
Caps .....	"	.20	.25	.31	.40	.55	.77	1.10	1.50	2.25	4.00	5.50	8.00	10.00
Locknuts .....	"	.24	.25	.32	.40	.50	.65	.85	1.10	1.60	3.25	4.75	6.50	8.00
Return Bends, Close .....	"	.85	1.00	1.30	1.55	2.05	2.65	3.75	4.90	7.25	13.00	19.00	..	..
" " Open .....	"	.95	1.10	1.35	1.65	2.15	2.80	4.10	5.40	7.75	14.25	20.00	..	..
"Y" Bends .....	"	..	..	1.35	1.60	2.15	3.05	4.45	5.70	8.50	15.50	25.00	33.00	41.00
Unions, Standard, Polished ..	"	.50	.60	.85	1.05	1.40	1.90	2.75	3.25	5.00	9.00	14.00	25.00	33.00
" " " & Tinned ..	"	.65	.75	1.05	1.30	1.70	2.35	3.30	3.85	5.90	10.20	16.25	28.00	36.75
" Octagon, Polished ..	"	.85	.90	1.15	1.45	1.90	2.50	3.35	4.25	6.00	10.00	16.00	25.00	33.00



**BRASS FITTINGS****CAST IRON PATTERN, IRON PIPE SIZE**

For Working Pressures up to 250 Pounds

**ELBOW**

Fig. 734A

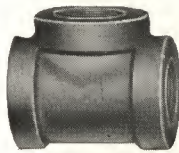
**TEE**

Fig. 734B

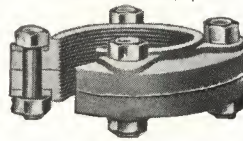
**FLANGE UNION**

Fig. 734C

Effective January 15, 1915

**ROUGH**

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows, 90°.....each	.33	.45	.65	1.00	1.50	2.25	3.00	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00
“ Reducing.... “	..	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	19.00	25.00	30.00	40.00	50.00
“ 45°..... “	.45	.55	.75	1.10	1.65	2.50	3.25	4.50	8.00	11.25	16.00	22.00	27.00	35.00	45.00
“ R. and L. “	.40	.55	.75	1.20	1.80	2.60	3.50	5.25	9.00	13.00	....	....	....	....	....
Tees..... “	.45	.60	.90	1.35	2.00	3.00	4.00	6.00	10.75	15.00	22.00	30.00	36.00	46.00	60.00
“ Reducing.... “	..	.70	1.05	1.55	2.30	3.50	4.50	6.75	12.00	17.00	25.00	35.00	40.00	51.00	66.00
Crosses..... “	.70	.90	1.30	2.00	3.00	4.50	6.00	9.00	16.00	22.50	28.00	37.00	45.00	60.00	75.00
“ Reducing.... “	..	1.10	1.50	2.40	3.60	5.25	7.00	10.50	18.00	26.00	32.00	42.00	50.00	66.00	82.00
Couplings..... “	.40	.50	.70	1.10	1.65	2.25	3.00	4.50	7.00	10.00	13.00	17.00	21.00	27.00	35.00
Return Bends, Close. “	..	..	1.65	2.50	3.50	5.00	7.00	10.00	16.00	22.00	30.00	40.00	....	....	....
“ “ Open. “	..	..	1.80	2.75	4.00	5.50	8.00	11.00	18.00	25.00	35.00	45.00	....	....	....
“Y” Bends.... “	.90	1.10	1.50	2.50	3.50	5.50	7.25	11.00	19.00	27.00	33.00	45.00	55.00	70.00	90.00

**FINISHED**

Size....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows, 90°...each	.73	.95	1.25	1.75	2.50	3.50	4.50	6.25	10.50	14.75	23.50	31.00	38.00	48.00	60.00
“ Reducing “	..	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	28.00	36.00	43.75	56.00	70.00
“ 45°.... “	.95	1.15	1.50	2.00	2.85	4.00	5.10	6.75	11.00	15.50	25.00	33.00	40.75	51.00	65.00
“ R. and L. “	.90	1.15	1.50	2.10	3.00	4.10	5.35	7.50	12.00	17.25	....	....	....	....	....
Tees..... “	1.00	1.25	1.70	2.35	3.35	4.65	6.00	8.35	14.00	19.75	32.00	42.00	51.00	64.00	80.00
“ Reducing.... “	..	1.50	2.05	2.80	4.00	5.50	7.00	9.75	16.00	23.00	37.00	50.00	58.00	70.00	90.00
Crosses..... “	1.50	1.90	2.50	3.50	5.00	7.00	9.00	12.50	21.00	29.50	43.00	55.00	67.00	85.00	105.00
“ Reducing.... “	..	2.35	3.00	4.25	6.00	8.25	10.75	15.00	24.00	35.00	50.00	64.00	75.00	95.00	120.00
Couplings.. “	.75	.90	1.15	1.70	2.40	3.20	4.15	5.85	9.00	13.00	18.50	24.00	29.00	37.00	47.00
Return Bends, Close..... “	..	..	2.85	4.00	5.50	7.50	10.00	13.50	21.00	29.00	45.00	58.00	....	....	....
Return Bends, Open..... “	..	..	3.00	4.25	6.00	8.00	11.00	14.50	23.00	32.00	50.00	63.00	....	....	....
“Y” Bends. “	1.70	2.10	2.70	4.00	5.50	8.00	10.25	14.50	24.00	34.00	48.00	63.00	77.00	96.00	120.00

**FLANGE UNIONS**

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Price, 125 Pounds Working Pressure, Iron Bolts.each	4.00	4.50	5.00	5.50	7.00	9.00	11.50
“ Extra Heavy..... “	....	7.50	8.50	11.00	13.00	16.00	18.00
Size.....inches	3	3 1/2	4	4 1/2	5	6	....
Price, 125 Pounds Working Pressure, Iron Bolts.each	15.00	18.00	22.00	27.00	35.00	45.00	....
“ Extra Heavy..... “	24.00	27.00	30.00	37.00	48.00	60.00	....



## STANDARD BRASS VALVES

WITH BRASS DISC

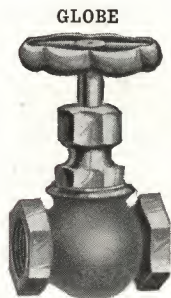


Fig. 5241A

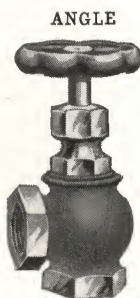


Fig. 5241B



Fig. 5241C

## GLOBE, ANGLE AND CROSS—SCREWED

Size.....inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4
Price, Globe or Angle.....each	.72	.72	.77	1.00	1.26	1.80	2.52
“ Cross.....“	...	1.25	1.25	1.50	2.00	2.50	3.50
Size.....inches	1 1/2	2	2 1/2	3	3 1/2	4	...
Price, Globe or Angle.....each	3.50	5.30	10.00	14.40	26.50	36.00	...
“ Cross.....“	5.00	8.00	16.00	24.00	...	...	...

## GLOBE AND ANGLE—FLANGED

Size.....inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Diam. of Flanges.....inches	3 1/2	4	4 1/2	5	6	7	7 1/2	8 1/2	9
Price.....each	5.00	6.75	8.50	10.50	16.00	23.00	35.00	50.00	70.00

## GLOBE AND ANGLE—WITH WOOD WHEEL

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Plain ..each	1.15	1.25	1.40	1.75	2.35	3.25	4.35	6.85
“ “ “ Plated All Over “	1.40	1.55	1.70	2.10	2.75	3.70	4.85	7.60
“ Finished All Over ... “	1.85	2.00	2.15	2.50	3.25	4.35	5.75	9.00
“ “ and Plated All Over “	2.15	2.30	2.45	2.85	3.65	4.80	6.25	9.75

## GLOBE AND ANGLE—WITH FINISHED BRASS WHEEL

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price, Finished.....each	2.75	3.00	3.15	3.50	4.25	5.60	7.00	10.25
“ “ and Plated. “	3.25	3.50	3.70	4.10	4.90	6.30	7.75	11.25

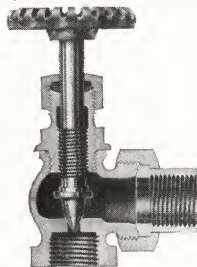


Fig. 5241D

## NEEDLE—WITH NON-HEATING WHEEL

Size.....inches	1/4	3/8	1/2	3/4
Size of Feed Opening.....inches	1/16	1/8	3/16	1/4
Price, Globe, Female Openings .. each	1.40	1.50	2.00	2.50
“ Angle “ “ “	1.40	1.50	2.00	2.50
“ Angle with Union.....“	2.00	2.20	3.00	3.50

Used for Regulating fuel oil feed and are made to order only.  
In ordering, state size of opening for feed; otherwise will furnish as above. Also state whether globe or angle, and with female openings or with union.

## STANDARD BRASS CHECK VALVES

HORIZONTAL

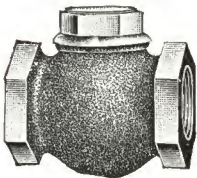


Fig. 739A

ANGLE

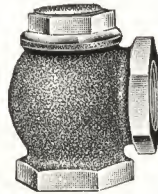


Fig. 739B

VERTICAL



Fig. 739C

## HORIZONTAL, ANGLE AND VERTICAL—SCREWED

Size..... inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Horizontal..... each	.65	.65	.70	.90	1.15	1.60	2.25
“ Angle or Vertical..... “	....	.72	.77	1.00	1.26	1.80	2.52
Size..... inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	....
Price, Horizontal..... each	3.15	4.75	9.00	13.00	24.00	32.50	....
“ Angle or Vertical..... “	3.50	5.80	10.00	14.40	....	....	....

Vertical made to 2-inch only.

## HORIZONTAL—FLANGED

Size..... inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Diam. of Flanges..... inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	$7\frac{1}{2}$	$8\frac{1}{2}$	9
Price..... each	4.90	6.50	8.25	10.15	15.50	22.00	33.50	47.50	66.50

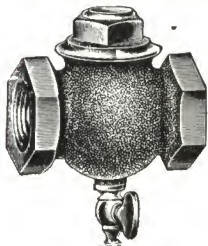
HORIZONTAL  
WITH DRIP COCK

Fig. 739D

BALL

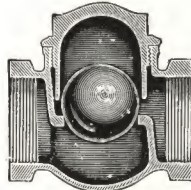


Fig. 739E

SWING

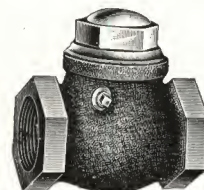


Fig. 739F

## HORIZONTAL, BALL AND SWING—SCREWED

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Horizontal, with Drip Cock..... each	....	2.15	2.55	3.15	4.05
“ “ without Drip Cock..... “	....	1.85	2.20	2.70	3.60
“ Ball Check..... “	....	1.60	2.30	3.10	4.00
“ Swing Check..... “	1.80	2.00	2.25	2.80	3.65
Size..... inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	....
Price, Horizontal, with Drip Cock..... each	....	....	....	....	....
“ “ without Drip Cock..... “	....	....	....	....	....
“ Ball Check..... “	6.20	9.40	....	....	....
“ Swing Check..... “	4.75	6.75	15.00	24.00	....

## STANDARD BRASS VALVES WITH JENKINS DISC

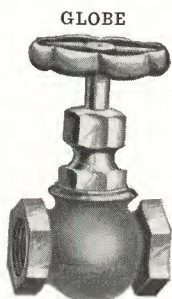


Fig. 2224A

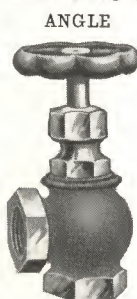


Fig. 2224B

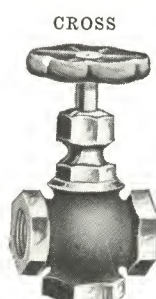


Fig. 2224C

### GLOBE, ANGLE AND CROSS—SCREWED

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Globe and Angle, each	1.10	1.10	1.25	1.60	2.20	2.80	4.00	5.50	8.75	15.75	22.00
“ Cross..... “	1.70	1.70	2.00	2.25	2.50	3.25	4.75	6.25	9.50	20.00	27.50

### GLOBE, ANGLE AND CROSS—FLANGED

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Globe and Angle.....each	5.00	6.00	9.00	11.00	16.50	25.00	34.00
“ Cross..... “	8.00	9.00	12.00	15.00	23.00	33.00	44.00

### GLOBE AND ANGLE—WITH WOOD WHEEL

Size.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough Body, Plain.....each	2.00	2.50	3.20	4.50	6.25	10.50
“ “ “ Nickel-plated All Over..... “	2.40	2.90	3.60	4.90	6.65	10.90
“ Finished All Over..... “	2.50	3.00	3.75	5.25	7.25	11.75
“ “ and Nickel-plated All Over..... “	2.90	3.40	4.15	5.65	7.65	12.15

### GLOBE AND ANGLE—WITH FINISHED BRASS WHEEL

Size.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Finished All Over.....each	3.50	4.00	4.75	6.50	8.50	13.00
“ “ and Nickel-plated All Over..... “	4.15	4.65	5.40	7.15	9.15	13.65

### EXTRA DISCS—ROUND HOLE—STANDARD

For 100 Pounds Pressure

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Price.....each	.03	.04	.04	.05	.06	.09	.12	.18	.24	.40	.50	.60	.70
Size.....inches	5	6	7	8	9	10	12	14	16	18	20	22	24
Price.....each	.80	1.00	1.20	1.40	1.80	2.25	2.50	3.50	4.00	5.00	6.00	7.50	9.00

### CHECK—HORIZONTAL OR ANGLE—SCREWED

Size.....inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price.....each	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	21.00

### CHECK—HORIZONTAL OR ANGLE—FLANGED

Size.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price.....each	4.00	5.00	6.00	8.00	10.00	15.00	23.00	32.00



## BRASS GATE VALVES

STANDARD

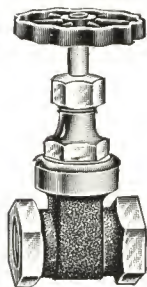


Fig. 4836A

QUICK OPENING



Fig. 4836B

HOSE

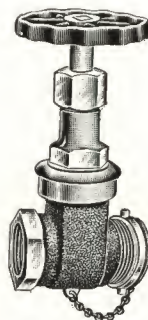


Fig. 4836C

## STANDARD—SCREWED

Size.....inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Price.....each	1.45	1.45	1.65	2.05	2.80	3.70	5.00
Size.....inches	2	2 1/2	3	*3 1/2	*4	*5	*6
Price.....each	7.30	13.00	19.00	43.00	58.00	110.00	165.00

## STANDARD—FLANGED

Size.....inches	2	2 1/2	3	*3 1/2	*4	*5	*6
Diameter of Flanges.....inches	6	7	7 1/2	8 1/2	9	10	11
Face to Face....."	5 1/8	6	6 5/8	6 1/4	7	9 1/4	10 3/4
Price.....each	25.00	33.00	39.00	68.00	83.00	135.00	190.00

## QUICK OPENING—SCREWED

Size.....inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....each	3.60	4.80	6.20	8.50	11.80	20.25	30.00

## QUICK OPENING—FLANGED

Size.....inches	2	2 1/2	3
Price.....each	29.50	40.00	50.00

## HOSE—WITH IRON WHEEL

Size.....inches	1	1 1/4	1 1/2	2	2 1/2	3
Price, Rough Body, without Cap and Chain, each	3.35	4.70	6.25	9.00	15.00	22.00
“ “ “ with “ “ “ “	5.10	6.70	8.85	12.60	20.00	29.50

## HOSE—WITH FINISHED BRASS WHEEL

Size.....inches	1	1 1/4	1 1/2	2	2 1/2	3
Price, Finished, without Cap and Chain...each	6.90	9.10	11.85	17.30	26.00	38.00
“ “ “ with “ “ “ “	8.65	11.10	14.45	20.90	31.00	45.50
“ “ and Nickel-plated, without “	7.50	9.80	12.65	18.30	27.25	39.75
“ Finished and Nickel-plated, with “	9.25	11.80	15.25	21.90	32.25	47.25

\*NOTE.—3 1/2 to 6-inch valves have flanged bonnet, non-rising stems and are made on order only.

Hose valves have standard iron pipe thread on female end and hose thread on male end. When ordering, send sample hose thread.

## STANDARD IRON BODY VALVES

**BRASS MOUNTED**

GLOBE

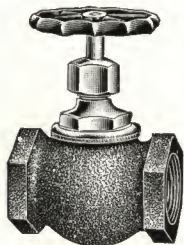


Fig. 9620A

## ANGLE

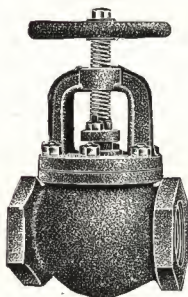


Fig. 96203

Size.....	inches	2	2½	3
Price, Globe or Angle, Screwed.....	each	5.40	7.35	9.80
“ “ “ Flanged.....	“	7.00	9.00	12.50
“ Cross, Screwed.....	“	6.50	9.00	12.50
“ “ Flanged.....	“	9.00	11.75	16.50

WITH YOKE

**GLOBE**



**Fig. 9620C**

## ANGLE

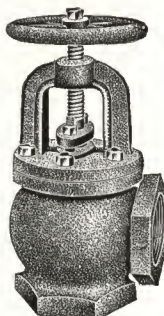
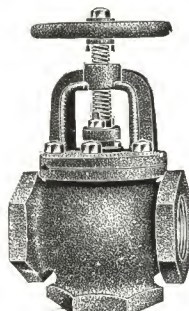


Fig. 9620D

## CROSS



**Fig. 9620E**

Size.....inches	2	2½	3	3½	4	4½	5	6
Price, Globe, or Angle, Serd. each	7.00	9.00	12.50	15.25	19.00	24.00	27.00	37.50
“ “ “ “ Flgd. “	8.60	10.75	15.00	18.50	22.50	27.50	31.00	42.00
“ Cross, Screwed..... “	....	....	16.25	20.00	23.50	30.65	35.25	47.25
“ “ Flanged..... “	....	....	20.00	25.00	28.50	36.00	41.00	54.00
Size.....inches	7	8	10	12	14	15	16	.....
Price, Globe or Angle, Serd. each	63.00	72.00	114.00	170.00	.....	.....	.....	.....
“ “ “ “ Flgd. “	68.00	77.00	123.00	187.00	350.00	.....	475.00	.....
“ Cross, Screwed..... “	78.00	92.00	162.00	240.00	.....	.....	.....	.....
“ “ Flanged..... “	85.00	100.00	175.00	265.00	.....	.....	.....	.....

# STANDARD IRON BODY CHECK VALVES

For Working Pressures up to 125 Pounds

## SCREWED

### HORIZONTAL

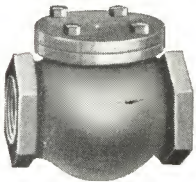


Fig. 761A

### VERTICAL

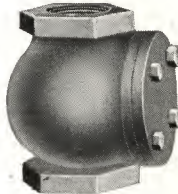


Fig. 761B

### SWING

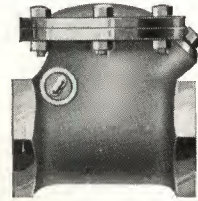


Fig. 761C

Size.....inches	2	2½	3	3½	4	4½	5	6	7	8	10	12
Price, Horizontal, each	3.60	6.50	8.90	12.25	14.25	19.00	22.00	30.00	.....	.....	.....	.....
“ Vertical... “	.....	9.50	12.50	17.00	21.00	30.00	33.00	40.00	.....	.....	.....	.....
“ Swing.. “	.....	12.00	13.50	17.50	20.00	26.00	30.00	36.00	55.00	70.00	110.00	160.00

## FLANGED

### VERTICAL



Fig. 761D

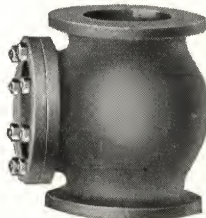


Fig. 761E

### SWING

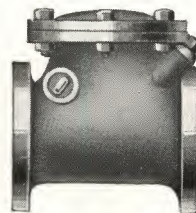


Fig. 761F

## HORIZONTAL

Size.....inches	3	4	5	6	7	8	10	12	14	15
Diameter of Flanges, inches	7½	9	10	11	12½	13½	16	19	21	22¼
Price.....each	11.50	18.00	26.00	35.00	50.00	62.00	115.00	175.00	300.00	.....

## VERTICAL

Size.....inches	6	7	8	10
Diameter of Flanges.....inches	11	12½	13½	16
Price.....each	45.00	67.00	78.00	135.00

## SWING

Size.....inches	2½	3	3½	4	4½	5	6	7	8
Diameter of Flanges...inches	7	7½	8½	9	9¼	10	11	12½	13½
Price, Flanged...each	14.50	17.00	21.00	24.00	30.00	34.00	41.00	60.00	75.00
“ Hub End.. “	.....	19.00	.....	27.00	.....	38.00	45.00	.....	82.50
Size.....inches	10	12	14	15	16	18	20	24	30
Diameter of Flanges...inches	16	19	21	22¼	23½	25	27½	32	38¾
Price, Flanged...each	115.00	168.00	340.00	400.00	450.00	600.00	700.00	1000.00	1650.00
“ Hub End.. “	125.00	185.00	340.00	.....	450.00	600.00	700.00	1000.00	1650.00



## STANDARD IRON BODY VALVES

WITH JENKINS DISC  
BRASS MOUNTED

GLOBE

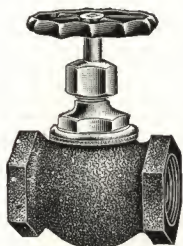


Fig. 4831A

ANGLE



Fig. 4831B

Size .....	inches	2	2½	3
Price, Globe or Angle, Screwed .....	each	7.25	11.00	16.00
“ “ “ “ Flanged .....	“	8.50	13.00	18.00

WITH YOKE

GLOBE

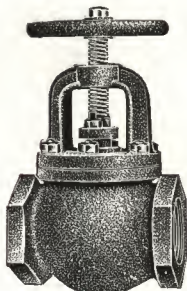


Fig. 4831C

ANGLE

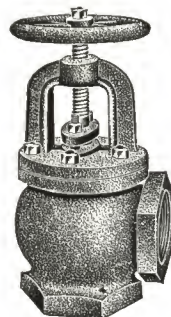


Fig. 4831D

Size .....	inches	2½	3	3½	4	4½	5
End to End, Screwed, Globe .....	inches	8	8¼	9½	10½	11¼	12¼
Face “ Face, Flanged, “ .....	“	9½	10	11	12	13	13¾
Center to End, Screwed, Angle .....	“	4	4½	4¾	5¼	5⅝	6⅞
“ “ Face, Flanged, “ .....	“	4¾	5	5½	6	6½	6⅞
Diameter of Flanges .....	“	7	7½	8½	9	9¼	10
Price, Globe or Angle, Screwed .....	each	12.00	16.75	19.50	24.00	32.00	40.00
“ “ “ “ Flanged .....	“	14.00	18.50	21.50	26.00	34.00	42.00
Size .....	inches	6	7	8	10	12	..
End to End, Screwed, Globe .....	inches	14	17	18½	22½	25½	...
Face “ Face, Flanged, “ .....	“	16	17	18½	22½	25½	...
Center to End, Screwed, Angle .....	“	7	8½	9¼	11¼	12¾	...
“ “ Face, Flanged, “ .....	“	8	8½	9¼	11¼	12¾	...
Diameter of Flanges .....	“	11	12½	13½	16	19	...
Price, Globe or Angle, Screwed .....	each	48.00	80.00	90.00	130.00	185.00	...
“ “ “ “ Flanged .....	“	50.00	80.00	90.00	130.00	185.00	...

# STANDARD IRON BODY GATE VALVES

BRASS TRIMMINGS, WEDGE GATE, OPEN TO THE LEFT  
NON-RISING STEM

SCREWED

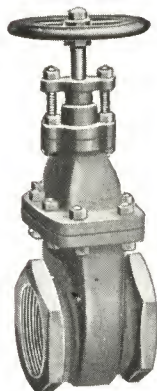


Fig. 6314A

FLANGED

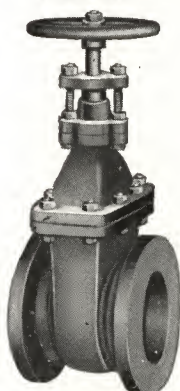


Fig. 6314B

HUB ENDS

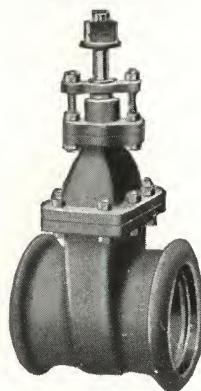


Fig. 6314C

Adopted November 15, 1911

## SCREWED OR FLANGED

Sizes 16-inch and Smaller, for Steam Working Pressures up to 125 Pounds; Sizes 18-inch and Larger, for Pressures up to 100 Pounds

Size.....inches	2	2½	3	3½	4	4½	5	6
Face to Face..inches	7	7½	8	8½	9	9½	10	10½
Diam., Flanges "	6	7	7½	8½	9	9¼	10	11
Price, Screwed, each	10.00	11.50	14.00	17.00	19.00	24.00	27.50	32.50
" Flanged "	12.00	13.50	16.50	19.50	23.00	28.00	31.50	36.50
Size.....inches	7	8	9	10	12	14	15	16
Face to Face..inches	11	11½	12	13	14	15	15	16
Diam., Flanges "	12½	13½	15	16	19	21	22¼	23½
Price, Screwed, each	45.00	54.00	76.00	90.00	125.00	.....	.....	.....
" Flanged "	49.00	58.00	81.00	95.00	133.00	181.00	220.00	260.00
Size.....inches	18	20	22	24	26	28	30	....
Face to Face..inches	17	18	19	20	23	26	30	....
Diam., Flanges "	25	27½	29½	32	34¼	36½	38¾	....
Price, Flanged, each	350.00	425.00	530.00	600.00	800.00	950.00	1100.00	....

## HUB ENDS

Sizes 12-inch and Smaller, for Water Working Pressures up to 175 Pounds; Sizes 14 and 16-inch, up to 150 Pounds; Sizes 18-inch and Larger, up to 120 Pounds

Size.....inches	2	3	4	5	6	7	8	10
End to End..inches	8½	9	10¼	10¼	10¾	10¾	12	12¾
Price ..... each	10.00	14.00	19.00	27.50	32.50	45.00	54.00	90.00
Size.....inches	12	14	16	18	20	24	30	....
End to End..inches	13½	13¾	16	17	17	18	30	....
Price ..... each	125.00	173.00	250.00	340.00	415.00	590.00	1075.00	....
" with By-Pass, "	.....	.....	315.00	415.00	500.00	690.00	1225.00	....

All iron gates, same list prices as brass mounted.

## STANDARD IRON BODY GATE VALVES

WITH OUTSIDE SCREW  
AND YOKE, STEEL STEM

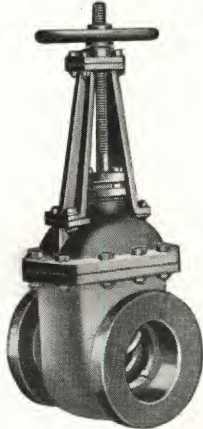


Fig. 2335A

### BRASS TRIMMINGS

FOR STEAM WORKING PRESSURES

Sizes 16-inch and Smaller, up to  
125 Pounds; Sizes 18-inch and  
Larger, up to 100 Pounds

SPUR GEARED

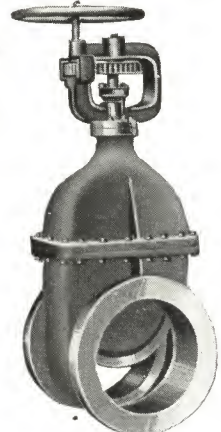


Fig. 2335B

### WITH OUTSIDE SCREW AND YOKE, OPEN TO THE LEFT, WEDGE GATE

The outside screw and yoke indicates whether the valve is open, partly open or closed.

Size.....inches	2	2½	3	3½	4	4½	5	6
Price, with Steel Stem, Screwed....each	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00
“ “ “ Flanged.... “	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00
“ “ Brass “ Screwed.... “	19.00	20.50	23.50	27.00	32.50	40.00	45.00	52.00
“ “ “ Flanged.... “	21.00	22.50	26.00	29.50	36.50	44.00	49.00	56.00
Size.....inches	7	8	9	10	12	14	15	16
Price, with Steel Stem, Screwed....each	64.00	80.00	105.00	122.00	160.00	.....	.....	.....
“ “ “ Flanged.... “	68.00	84.00	110.00	127.00	168.00	236.00	285.00	325.00
“ “ Brass “ Screwed.... “	69.00	86.00	113.00	131.00	172.00	.....	.....	.....
“ “ “ Flanged.... “	73.00	90.00	118.00	136.00	180.00	255.00	310.00	350.00
Size.....inches	18	20	22	24	26	28	30	.....
Price, with Steel Stem, Flanged....each	435.00	525.00	650.00	725.00	950.00	1125.00	1300.00	.....
“ “ Brass “ “ “	470.00	565.00	700.00	775.00	1025.00	1210.00	1400.00	.....

### SPUR GEARED, FLANGED OR HUB END, OPERATED WITH GEARING WEDGE GATE, OPEN TO THE LEFT, NON-RISING STEM

Size.....inches	16	18	20	22	24	26
Price, Flanged End.....each	360.00	460.00	550.00	675.00	750.00	1000.00
“ “ “ with By-Pass.. “	425.00	535.00	635.00	775.00	850.00	1125.00
“ “ Hub End..... “	350.00	450.00	540.00	.....	740.00	.....
“ “ “ with By-Pass..... “	415.00	525.00	625.00	.....	840.00	.....
Size.....inches	28	30	36	42	48	.....
Price, Flanged End.....each	1200.00	1400.00	2100.00	3150.00	4300.00	.....
“ “ “ with By-Pass.. “	1350.00	1550.00	2300.00	3400.00	4600.00	.....
“ “ Hub End..... “	.....	1375.00	2050.00	3100.00	4250.00	.....
“ “ “ with By-Pass..... “	.....	1525.00	2250.00	3350.00	4550.00	.....

Bevel gears, same list as spur gears.



# STANDARD IRON BODY GATE VALVES

For Steam Working Pressures up to 125 Pounds

QUICK OPENING

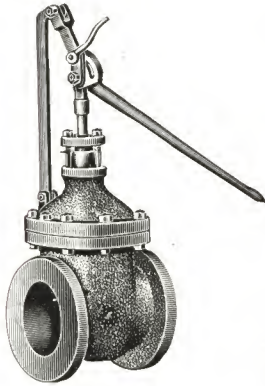


Fig. 773A

WITH INDICATOR

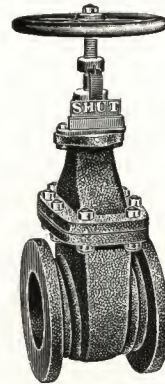


Fig. 773B

WEDGE GATES  
BRASS TRIMMINGS  
OPEN LEFT

Effective Nov. 15, 1911

## QUICK OPENING—SLIDING STEM

Size..... inches	2	2½	3	3½	4	4½	5	6
Price, Screwed..... each	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00
“ Flanged..... “	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00
Diameter of Flanges..... inches	6	7	7½	8½	9	9¼	10	11
Face to Face, Flanged .. “	7	7½	8	8½	9	9½	10	10½
Size..... inches	7	8	9	10	12	14	15	16
Price, Screwed..... each	64.00	80.00	105.00	122.00	160.00	.....	.....	.....
“ Flanged..... “	68.00	84.00	110.00	127.00	168.00	236.00	285.00	325.00
Diameter of Flanges..... inches	12½	13½	15	16	19	21	22¼	23½
Face to Face, Flanged .. “	11	11½	12	13	14	15	15	16

## WITH INDICATOR—NON-RISING STEM

Gate valves with indicator are especially for service in mills, factories, etc., in connection with automatic fire sprinkler pipes or any other water system. They are recommended by The Associated Factory Mutual Fire Insurance Companies.

Size..... inches	2	2½	3	3½	4	4½	5	6
Price, Screwed..... each	17.50	19.00	22.00	25.00	30.00	37.00	42.00	48.00
“ Flanged..... “	19.50	21.00	24.50	27.50	34.00	41.00	46.00	52.00
Diameter of Flanges..... inches	6	7	7½	8½	9	9¼	10	11
Face to Face, Flanged .. “	7	7½	8	8½	9	9½	10	10½
Size..... inches	7	8	9	10	12	14	15	16
Price, Screwed..... each	64.00	80.00	105.00	122.00	160.00	.....	.....	.....
“ Flanged..... “	68.00	84.00	110.00	127.00	168.00	236.00	.....	325.00
Diameter of Flanges..... inches	12½	13½	15	16	19	21	22¼	23½
Face to Face, Flanged .. “	11	11½	12	13	14	15	15	16

The indicator attachment enables the operator to determine at a glance the position of valves, when open, partly open, or shut.

# EXTRA HEAVY IRON BODY GLOBE AND ANGLE VALVES

WITH YOKE AND HARD METAL SEATS

For 250 Pounds Working Pressure

Tested to 800 Pounds Hydraulic Pressure

ANGLE VALVE, FLANGED

GLOBE VALVE, FLANGED

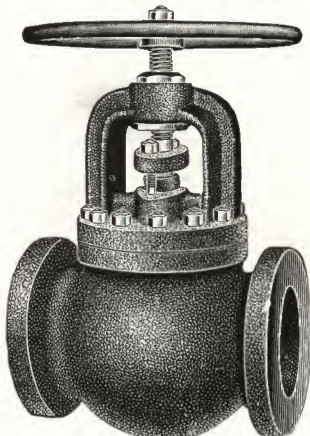


Fig. 311A

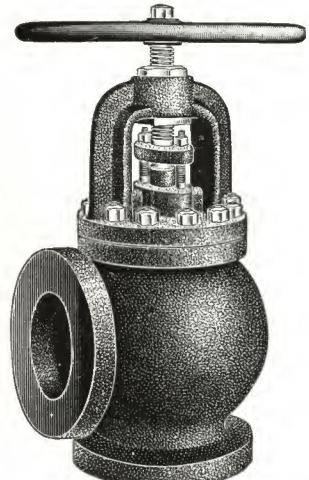


Fig. 311B

Size.....inches	2	2½	3	3½	4	4½	5
Price, Screwed.....each	26.00	33.00	37.00	42.00	46.00	56.00	61.00
“ Flanged.....“	27.50	35.00	40.00	45.00	50.00	60.00	65.00
End to End Globe Valve, Sc'd...inches	9½	10¾	11¾	12¼	13	14	15
Face “ Face “ “ Flg'd...“	10½	11½	12½	13¼	14	15	15¾
Center to End Angle Valve, Sc'd. “	4¾	5¾	5¾	6¼	6½	7	7½
“ “ Face “ “ Flg'd. “	5¼	5¾	6¼	6¾	7	7½	7¾
Diameter of Flanges.....“	6½	7½	8¼	9	10	10½	11
Size.....inches	6	7	8	10	12	14	15
Price, Screwed.....each	75.00	95.00	114.00	190.00	....	....	....
“ Flanged.....“	80.00	100.00	120.00	200.00	300.00	400.00	400.00
“ with By-Pass.....“	....	....	150.00	250.00	350.00	450.00	450.00
Size of By-Pass.....inches	....	....	1½	1½	2	2	2
End to End Globe Valve, Sc'd...“	16½	18¼	20	23¼	....	....	....
Face “ Face “ “ Flg'd...“	17½	19¼	21	24½	28	33	33
Center to End Angle Valve, Sc'd. “	8¼	9¼	10	11¾	....	....	....
“ “ Face “ “ Flg'd. “	8¾	9¾	10½	12¼	14	16½	16½
Diameter of Flanges.....“	12½	14	15	17½	20½	23	24½

We do not recommend the use of screwed valves larger than 6 inches. The by-pass on the globe valve is located on the right hand side looking at the inlet end, that is, the end with the passage under the disc. On the angle valves it is located on the back, opposite the outlet.

It is desirable that all valves, 8-inch and larger, should have a by-pass.

# EXTRA HEAVY IRON BODY CROSS VALVES WITH YOKE AND HARD METAL SEATS

For Working Pressures up to 250 Pounds

CROSS VALVE, FLANGED

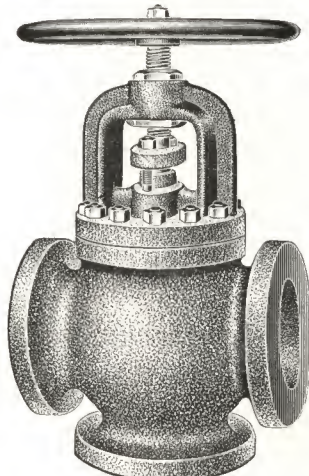


Fig. 4204A

## SCREWED

Size.....inches	2	2½	3	3½	4	4½	5	6	7	8	10
End to End.....inches	9½	10¾	11¾	12¼	13	14	15	16½	18¼	20	23¼
Price.....each	33.00	40.00	45.00	50.00	55.00	70.00	75.00	95.00	120.00	145.00	240.00

## FLANGED

Size.....inches	2	2½	3	3½	4	4½	5
Diameter of Flanges.....inches	6½	7½	8¼	9	10	10½	11
Face to Face....."	10½	11½	12½	13¼	14	15	15¾
Bolt Circle....."	5	5⅞	6⅝	7¼	7⅞	8½	9¼
Size of Bolts....."	⅝	¾	¾	¾	¾	¾	¾
Number of Bolts.....	4	4	8	8	8	8	8
Price.....each	35.00	43.00	50.00	55.00	60.00	75.00	80.00

Size.....inches	6	7	8	10	12	14	15
Diameter of Flanges.....inches	12½	14	15	17½	20½	23	24½
Face to Face....."	17½	19¼	21	24½	28	33	33
Bolt Circle....."	10⅝	11⅞	13	15¼	17¾	20¼	21½
Size of Bolts....."	¾	⅞	⅞	1	1⅞	1⅞	1¼
Number of Bolts.....	12	12	12	16	16	20	20
Price.....each	100.00	125.00	150.00	250.00	375.00	500.00	500.00
" with By-pass....."	....	....	180.00	300.00	425.00	550.00	550.00

We do not recommend the use of screwed end valves larger than 6-inch.

It is desirable that valves 8-inch and larger have a by-pass.

Center to face of inlet, one half the face to face dimensions.

The template in the above table is in multiples of four, so that valves may be made to face in any quarter, and the holes straddle center line.



**EXTRA HEAVY SWING CHECK VALVES****IRON BODY—HARD METAL SEATS—FLANGED ENDS**

For 250 Pounds Steam Working Pressure

Tested to 800 Pounds Hydraulic Pressure

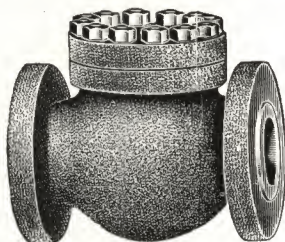


Fig. 3802A

May be Used in Horizontal or Vertical Position

**EXTRA HEAVY—SCREWED**

Size..... inches	2	2½	3	3½	4	4½
End to End..... inches	9½	10¾	11¾	12¼	13	14
Price..... each	15.00	20.00	28.00	36.00	41.00	49.00
Size..... inches	5	6	7	8	10	....
End to End..... inches	15	16½	18¼	20	23¼	....
Price..... each	54.00	66.00	84.00	100.00	170.00	....

**EXTRA HEAVY—FLANGED**

Size..... inches	2	2½	3	3½	4	4½	5
Face to Face..... inches	10½	11½	12½	13¼	14	15	15¾
Diameter of Flanges..... "	6½	7½	8¼	9	10	10½	11
Price..... each	17.00	22.00	30.00	38.00	44.00	52.00	57.00
Size..... inches	6	7	8	10	12	14	15
Face to Face..... inches	17½	19¼	21	24½	28	33	33
Diameter of Flanges..... "	12½	14	15	17½	20½	23	24½
Price..... each	70.00	88.00	105.00	175.00	250.00	350.00	350.00

**PROPORTIONATE WATER WORKING PRESSURES**

For convenience in determining the approximate or admissible water working pressure to which valves or fittings may be subjected, proportionate to or based on the designated steam working pressures, we suggest the following conservative rule, although a much greater range may be safely used with comparatively small sizes of valves and fittings:

To the steam working pressure, for sizes 8 to 12-inch add 40 per cent, for sizes 14-inch and larger, add 20 per cent.

Extra heavy gate valves, check valves and flanged fittings will stand 400 pounds water or natural gas working pressure on sizes 8-inch and smaller when temperature does not exceed 100° Fahrenheit.

# EXTRA HEAVY IRON BODY GATE VALVES

## HARD METAL SEATS, WEDGE GATE

These valves are tested to 800 pounds hydraulic pressure per square inch with the valve open, and are also tested with the valve closed and the pressure against the disc to 500 pounds hydraulic pressure. These valves have been subjected to a hydraulic pressure with the valve closed and the pressure against the disc as follows:

Size: 1½ to 8-in. 10 to 14-in. 16 and 18-in. 20 to 24-in.  
Tight at 1300 lbs. 900 lbs. 800 lbs. 600 lbs.

It will be observed that all sizes up to and including 18-inch are tight with a pressure of 800 pounds against the disc. The 20-inch, 22-inch and 24-inch valves are tight against 600 pounds, which is as heavy a strain as a valve of these sizes should be subjected to.

The factor of safety used is conservatively high, but it is not only a question of the goods standing the pressure, but also standing the strains of expansion, contraction, settling, weight of piping and water hammer; also the cutting effect of the steam, as the destruction of the seat of a valve, which renders it necessary to renew a valve in a large plant, is a very serious matter. Hence it follows that the brass used in these valves should be and is of a superior quality.

For 250 Pounds Strain  
Working Pressure

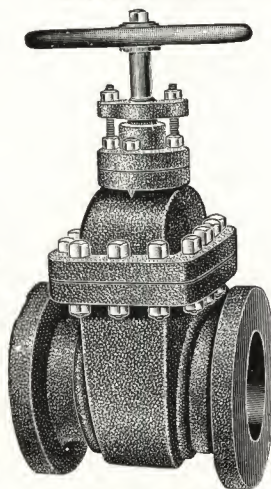


Fig. 4206A

Effective November 15, 1911

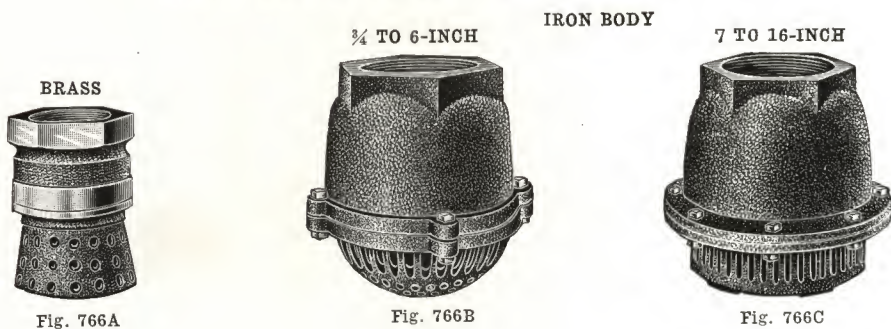
### SCREWED

Size .....	inches	1¼	1½	2	2½	3	3½	4
End to End .....	inches	5½	6¼	7	8	9	10	11
Price .....	each	24.00	25.00	27.50	33.00	45.00	57.00	60.00
Size .....	inches	4½	5	6	7	8	9	10
End to End .....	inches	12¼	13½	15⅞	16¼	16½	17	18
Price .....	each	77.00	85.00	100.00	125.00	155.00	225.00	250.00

### FLANGED

Size .....	inches	1¼	1½	2	2½	3	3½	4	4½	5
Diam. of Flanges .....	inches	5	6	6½	7½	8¼	9	10	10½	11
Face to Face .....	"	6½	7½	8½	9½	11⅞	11⅞	12	13¼	15
Bolt Circle .....	"	3¾	4½	5	5⅞	6⅞	7¼	7⅞	8½	9¼
Size of Bolts .....	"	½	⅝	⅝	¾	¾	¾	¾	¾	¾
Number of Bolts .....		4	4	4	4	8	8	8	8	8
Price .....	each	26.50	27.50	30.00	35.50	48.00	60.00	65.00	82.00	90.00
Size .....	inches	6	7	8	9	10	12	14	15	16
Diam. of Flanges .....	inches	12½	14	15	16¼	17½	20½	23	24½	25½
Face to Face .....	"	15⅞	16¼	16½	17	18	19¾	22½	22½	24
Bolt Circle .....	"	10⅞	11⅞	13	14	15¼	17¾	20¼	21½	22½
Size of Bolts .....	"	¾	¾	¾	1	1	1⅞	1⅞	1¼	1¼
Number of Bolts .....		12	12	12	12	16	16	20	20	20
Price .....	each	107.00	132.00	162.00	232.00	258.00	335.00	440.00	540.00	675.00

## FOOT VALVES WITH STRAINERS



### BRASS

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price .....	each	1.50	1.50	2.00	2.75	3.75	5.50	12.00	16.00

### IRON BODY—SCREWED

Size .....	inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Black.....	each	1.15	1.30	1.40	1.90	2.40	3.30	3.90	5.60
“ Galvanized.....	“	1.75	2.00	2.10	2.85	3.60	5.00	5.75	8.50
Size .....	inches	4	4 1/2	5	6	7	8	10	12
Price, Black.....	each	7.30	10.50	11.25	14.75	35.00	41.00	64.00	100.00
“ Galvanized .....	“	11.00	15.75	16.75	22.00	.....	.....	.....	.....

### IRON BODY—FLANGED

Size .....	inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Diameter of Flanges.....	inches	6	7	7 1/2	8 1/2	9	9 1/4	10	11
Height.....	“	5 1/2	6 3/8	7	9 1/8	9 1/8	11 3/8	11 3/8	12 3/4
Outside Diameter .....	“	6 1/2	7 1/4	7 1/2	8 7/8	9 7/8	10 1/2	10 1/2	11 3/4
Price.....	each	3.50	4.50	5.75	7.50	9.50	13.00	14.00	17.50
Size .....	inches	7	8	10	12	14	15	16	....
Diameter of Flanges.....	inches	12 1/2	13 1/2	16	19	21	22 1/4	23 1/2	....
Height.....	“	11 3/8	13 1/4	18 1/2	18	19 3/4	21 3/4	24 1/2	....
Outside Diameter .....	“	13 1/8	15 1/4	19 5/8	20 1/4	24 1/8	25 1/4	27	....
Price.....	each	38.00	45.00	70.00	112.00	150.00	175.00	200.00	....

### IRON BODY WITH NEST OF GATES—FLANGED

#### RUBBER VALVES

Size.....	inches	16	18	20	24	30	36
Diameter of Flanges.....	inches	23 1/2	25	27 1/2	32	38 3/4	45 3/4
Height.....	“	17 3/4	21 7/8	24	29	35	38 3/4
Outside Diameter.....	“	34 3/4	40 3/4	46	54 1/2	69 1/2	82
Thickness of Flanges.....	“	1 3/8	1 1/4	1 3/8	1 9/16	1 3/4	1 7/8
Price .....	each	190.00	235.00	265.00	400.00	780.00	1200.00

Valves with brass seats will be made to order at special prices.



## BUTTERFLY AND THROTTLE VALVES

For Steam Working Pressures up to 125 Pounds

### BUTTERFLY VALVES

BRASS

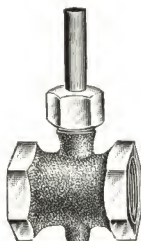


Fig. 1922A

IRON BODY

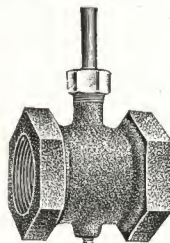


Fig. 1922B

### BRASS

These valves are not intended to be steam-tight.

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price .....each	3.10	4.40	5.65	6.75	10.00	13.75	21.00

These valves can be supplied with a brass stem, instead of steel stem, at an extra price. Always specify brass butterfly valves, otherwise sizes 2-inch and larger will be furnished in iron body.

### IRON BODY

These valves are not intended to be steam-tight.

Size. ....inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12	14	16
Price, Screwed. each	8.00	9.50	12.00	16.00	18.50	28.50	42.50	.....	.....	.....	.....	.....
" Flanged. " "	9.50	11.50	15.00	19.00	22.00	32.00	47.00	90.00	125.00	160.00	275.00	350.00

Can be furnished with a brass stem instead of steel stem, at an extra price.

### THROTTLE VALVES

BRASS

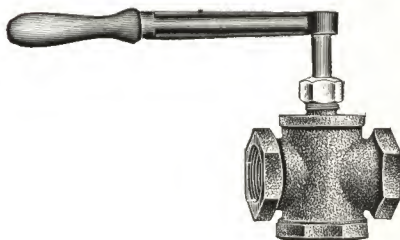


Fig. 1922C

IRON BODY

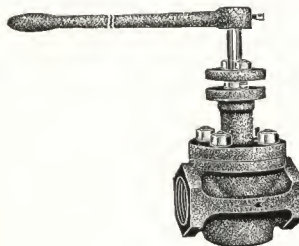


Fig. 1922D

### BRASS

They are opened with one quarter turn of handle, and are provided with stops.

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price.....each	10.00	11.50	14.00	20.00	25.00	35.00

### IRON BODY

Full opening in one quarter turn of handle.

Size.....inches	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price, Screwed.....each	30.00	40.00	50.00	60.00

These valves can also be furnished with body and bonnet of cast steel for steam working pressures up to 250 pounds. Prices on application.

## SAFETY VALVES

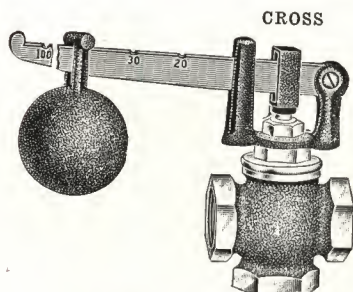


Fig. 3910A

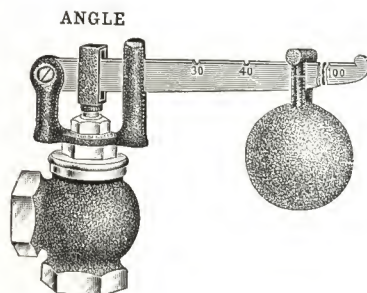


Fig. 3910B

## BRASS CROSS AND ANGLE SAFETY VALVES—BRASS DISC

For Steam Working Pressures up to 100 Pounds

Size..... inches	1/4	3/8	1/2	3/4	1
Price, Cross, Screwed..... each	2.20	2.50	3.25	3.90	4.70
" Angle, "..... "	....	....	3.25	3.90	4.70
Size..... inches	1 1/4	1 1/2	2	2 1/2	3
Price, Cross, Screwed..... each	7.15	9.00	12.50	22.50	33.50
" Angle, "..... "	7.15	9.00	12.50	.....	.....

Sizes 1 1/4-inch and larger will be furnished in iron, unless brass is specified.

## IRON BODY CROSS SAFETY VALVES—BRASS DISC

For Steam Working Pressures up to 100 Pounds

Size..... inches	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price, Screwed..... each	5.00	5.80	7.80	13.25	17.25	23.00
Size..... inches	4	4 1/2	5	6	7	8
Diameter of Flanges..... inches	9	....	10	11	12 1/2	13 1/2
Face to Face..... "	11.	....	13	14	16	17
Price, Screwed..... each	28.75	34.50	41.50	57.75	93.50	132.00
" Flanged..... "	34.00	....	48.00	65.00	100.00	140.00



Fig. 3910C

## HOUSE HEATER POP SAFETY VALVES

Furnished for Pressures not Exceeding 30 Pounds

Size..... inches	1/2	3/4	1	1 1/4	1 1/2
Price..... each	10.00	10.00	12.00	15.00	20.00
Size..... inches	2	2 1/2	3	3 1/2	4
Price..... each	30.00	50.00	65.00	100.00	160.00

## AMERICAN POP SAFETY VALVES

BRASS  
REGULAR  
TOP OUTLET

Fig. 5044A

BRASS  
REGULAR  
SIDE OUTLET

Fig. 5044B

BRASS  
LOCK-UP  
TOP OUTLET

Fig. 5044C

IRON BODY

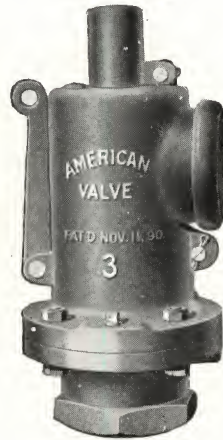


Fig. 5044D

## BRASS

When ordering, state pressure at which valves are to be set to blow off. For working pressures up to 200 pounds.

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2
Price, Regular, Top Outlet, Semifinished.....	each	8.00	8.00	10.00	12.00	15.00
" " " " Finished.....	"	9.00	9.00	11.00	13.00	16.00
" " " " Lock-Up Style, Semifin..	"	9.00	9.00	11.00	13.00	17.00
" " " " " " Fin....	"	10.00	10.00	12.00	14.00	18.00
" " Side Outlet, Semifinished.....	"	10.00	10.00	12.00	15.00	18.00
" " " " Finished.....	"	11.00	11.00	13.00	16.00	19.00
" " " " Lock-Up Style, Semifin..	"	11.00	11.00	13.00	16.00	20.00
" " " " " " Fin....	"	12.00	12.00	14.00	17.00	21.00
Size .....	inches	2	2 1/2	3	3 1/2	4
Price, Regular, Top Outlet, Semifinished.....	each	23.00	38.00	65.00	.....	.....
" " " " Finished.....	"	24.00	40.00	68.00	.....	.....
" " " " Lock-Up Style, Semifin..	"	25.00	40.00	68.00	.....	.....
" " " " " " Fin....	"	27.00	43.00	71.00	.....	.....
" " Side Outlet, Semifinished.....	"	27.00	43.00	72.00	95.00	120.00
" " " " Finished.....	"	29.00	46.00	77.00	105.00	135.00
" " " " Lock-Up Style, Semifin..	"	29.00	46.00	75.00	98.00	123.00
" " " " " " Fin....	"	31.00	49.00	80.00	108.00	138.00

Top outlet valves are used on stationary and portable boilers and engines. Side outlet valves for marine and stationary boilers. State which style is wanted when ordering.

## IRON BODY, FOR STATIONARY OR MARINE BOILERS—Screwed or Flanged

Size .....	inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6
For Boilers.....horse power {		30 to	40 to	75 to	100 to	125 to	150 to	175 to	225 &
		40	75	100	125	150	175	200	up
Diameter of Inlet Flange ..inches		6	8	10	10	11	11	11	12
Price, Bronze Seat.....each		35.00	42.00	50.00	68.00	75.00	100.00	120.00	170.00
" Nickel ".....each		40.00	48.00	57.00	75.00	87.00	115.00	135.00	190.00

These valves are furnished for marine or stationary service which should be specified on order



## AMERICAN WATER RELIEF VALVES

BRASS  
UNDERWRITERS'



Fig. 4807A

BRASS  
REGULAR



Fig. 4807B

IRON BODY  
UNDERWRITERS'

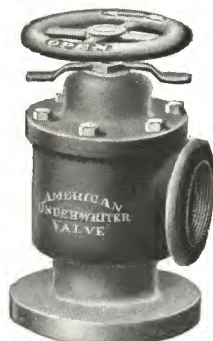


Fig. 4807C

IRON BODY  
REGULAR



Fig. 4807D

### FOR PUMPS EITHER STEAM, ROTARY OR PLUNGER

For 250 pounds pressure. When ordering state pressure at which valves are to relieve.

American Underwriter Relief Valves have been accepted by the Inspection Department of the Associated Factory Mutual Fire Insurance Companies for use on Standard Underwriter Fire Pumps. They are universally used by the manufacturers of Underwriter Pumps and recognized by them as standard. Their capacity for relief, size for size, is guaranteed by the makers to be full capacity. Standard Underwriter Valves are set at 100 pounds only.

In ordering, state pressure to be carried.

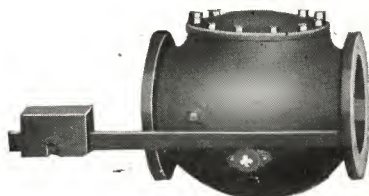
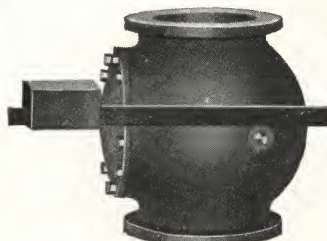
### BRASS

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price, Semifin.....each	10.00	10.00	12.00	15.00	18.00	27.00	43.00	72.00	95.00	120.00
“ “ N. P. “	11.00	11.00	13.00	17.00	21.00	30.00	47.00	80.00	105.00	135.00
“ Finished “	11.00	11.00	13.00	16.00	19.00	29.00	46.00	77.00	105.00	135.00
“ “ N. P. “	12.00	12.00	14.00	18.00	22.00	32.00	50.00	85.00	115.00	150.00

### IRON BODY

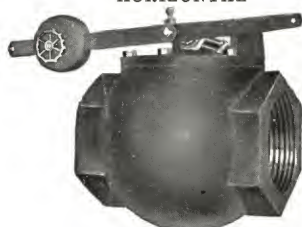
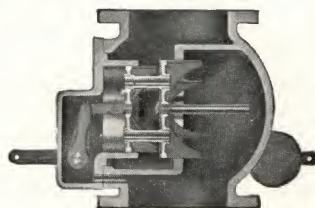
Size.....inches	2	2 1/2	3	3 1/2	4	5	6	8	10	12
Price.....each	45.00	55.00	65.00	85.00	100.00	150.00	225.00	400.00	800.00	1200.00

Iron valves, from 2-inch upward, are made with either screwed or flanged base. If flange is desired, specify when ordering.

**IRON BODY BACK PRESSURE VALVES****STANDARD****VERTICAL****HORIZONTAL****Fig. 4887A****Fig. 4887B**

Weighted for back pressure up to 5 pounds. The construction is such that the horizontal pattern can only be furnished in sizes 4-inch and larger.

Size .....	inches	2	2½	3	3½	4	5
Price, Screwed.....	each	11.00	13.00	15.00	19.00	22.50	33.50
Size .....	inches	6	7	8	10	12	....
Price, Screwed.....	each	43.00	70.00	85.00	120.00	180.00	....
" Flanged.....	"	47.00	75.00	90.00	130.00	200.00	....

**NOISELESS—PISTON TYPE  
FOR NON-CONDENSING ENGINES ONLY****HORIZONTAL****Fig. 4887C****VERTICAL****Fig. 4887D**

These valves can be placed in either horizontal or vertical position by changing the position of lever and weight. They have a single disc equal to the full area of the pipe and are provided with a balancing disc to eliminate excessive weighting.

**SCREWED**

Size .....	inches	2	2½	3	3½	4	4½	5	6	7	8	9
Price .....	each	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00	120.00

**FLANGED**

Size .....	inches	2	2½	3	3½	4	4½	5	6	7	8
Diam. of Flanges.....	inches	6	7	7½	8½	9	9¼	10	11	12½	13½
Price .....	each	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00
Size .....	inches	9	10	12	14	15	16	18	20	22	24
Diam. of Flanges.....	inches	15	16	19	21	22¼	23¼	25	27½	29½	32
Price .....	each	120.00	145.00	220.00	345.00	400.00	465.00	600.00	750.00	900.00	1050.00

Pressures: Sizes 2 to 6-inch, 1 to 10 pounds; 6 to 10-inch, 1 to 6 pounds; 10 to 20-inch, 1 to 4 pounds; 20 to 24-inch, 1 to 3 pounds, with a preference for horizontal installation. When desired for other ranges, the positions and pressures must be specified. They will be furnished, based upon the above working range, up to 15 pounds, without extra charge.



## "K & T" BACK PRESSURE AND AUTOMATIC RELIEF VALVES

No. K

### PATENTED NOISELESS BACK PRESSURE VALVES

FOR NON-CONDENSING ENGINES ONLY

EXTERIOR

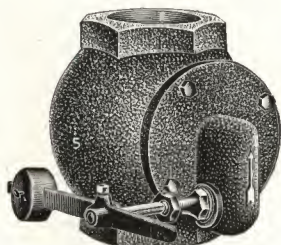


Fig. 5351A

SECTIONAL

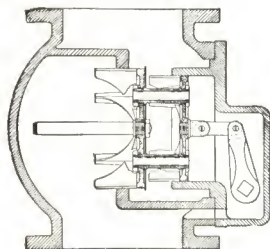


Fig. 5351B

Designed for use in connection with non-condensing engines, to hold a back pressure where the exhaust steam is used for heating purposes. Durable, sensitive and guaranteed to be absolutely noiseless in operation.

Size..... inches	2	2½	3	3½	4	4½	5	6	7	8
Price..... each	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00	100.00
Size..... inches	9	10	12	14	15	16	18	20	22	24
Price..... each	120.00	145.00	220.00	345.00	400.00	465.00	600.00	750.00	900.00	1050.00

Sizes 2 to 9 inches, inclusive, made with screwed or flanged ends; but screwed will be shipped if not ordered flanged. Sizes 10 inches and up, made flanged only.

### AUTOMATIC EXHAUST RELIEF VALVES

FOR CONDENSING ENGINES ONLY

VERTICAL EXTERIOR

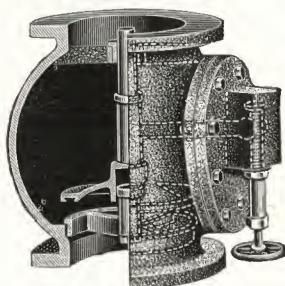


Fig. 5351C

HORIZONTAL SECTIONAL

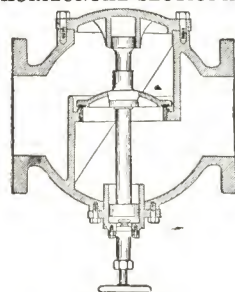


Fig. 5351D

For use with condensing engines to automatically relieve any pressure formed due to loss of vacuum. They are sensitive, reliable and noiseless in operation, and have full area of pipe. Made with water seal, also have dashpot to cushion disc so as to operate noiseless, and are provided with handwheel for permanently holding valve open.

Size. inches	6	7	8	10	12	14	16	18	20	22	24
Price..each	100.00	150.00	170.00	270.00	335.00	415.00	500.00	584.00	670.00	917.00	1170.00

Angle valves made to order only. All valves have standard flanges and drilling unless otherwise ordered. Companion flanges extra. Made flanged ends only.



# K. & T. STANDARD PRESSURE REGULATORS

For Any Initial Pressure up to 200 Pounds Steam

## No. 0, WITHOUT DASHPOT

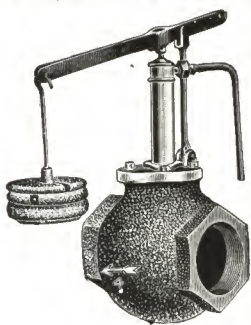


Fig. 925A

No. 0 is adapted for service on heating systems, or any apparatus requiring an unvarying reduced pressure, as jack kettles, driers, etc., where there is no pulsation of reduced pressure, as caused by the action of engine, pump or any apparatus where there is likely to be sudden fluctuation of load, in which case No. 1 should be used.

No. 1 is similar in construction to No. 0, except that it is provided with an oil dashpot, and is adapted for service on engines, pumps or any apparatus requiring an unvarying reduced pressure where there is likely to be a sudden fluctuation of the load, causing a pulsation on the reduced side; also used in connection with exhaust steam heating.

## No. 1, WITH DASHPOT

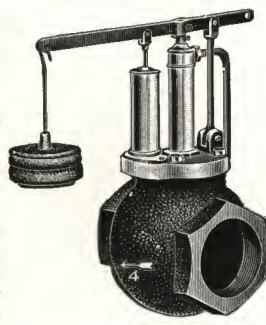


Fig. 925B

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, No. 0 .....	each	18.00	20.00	22.00	24.00	25.00	30.00	35.00	40.00
" " 1 .....	"	22.00	24.00	26.00	28.00	30.00	36.00	42.00	48.00
Face to Face, Screwed...inches		3 3/4	3 7/8	4 1/8	4 1/4	4 7/8	6 7/8	8	9 1/8
" " " Flanged... "		....	....	....	....	....	7 1/2	9	9 3/4

Size .....	inches	3 1/2	4	5	6	7	8	10	12
Price, No. 0 .....	each	50.00	60.00	75.00	100.00	135.00	175.00	275.00	400.00
" " 1 .....	"	60.00	72.00	90.00	120.00	160.00	200.00	300.00	435.00
Face to Face, Screwed...inches		9 7/8	9 7/8	11 1/4	12 1/4	....	....	....	....
" " " Flanged... "		9 3/4	10 5/8	12 7/8	13	14 5/8	16 1/4	20 1/4	22 5/8

In ordering, state initial and reduced pressures; also whether for steam, air or water.

Sizes 1 1/2 inches and under, made screwed ends only, with bronze bodies. Sizes 2 to 6 inches inclusive, made screwed or flanged ends, but screwed ends will be shipped if not ordered flanged. Sizes 7 inches and larger, made with flanged ends only.

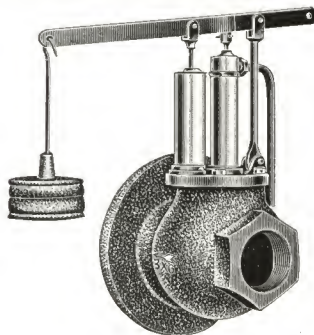


Fig. 925C

## No. 2, WITH EXPANDED OUTLET

This type is similar in construction to No. 1, excepting that it has an expanded outlet and is especially adapted for service on heating systems.

Size Inches	Price Each	Size Inches	Price Each
1 x 2	35.00	3 1/2 x 7	110.00
1 1/4 x 2 1/2	40.00	4 x 6	110.00
1 1/2 x 3	48.00	4 x 7	130.00
2 x 3	54.00	4 x 8	160.00
2 x 4	60.00	5 x 8	170.00
2 1/2 x 5	80.00	5 x 9	220.00
3 x 5	90.00	5 x 10	235.00
3 x 6	100.00	6 x 12	335.00

In ordering, state initial and reduced pressures; also whether for steam, air or water.

Sizes 1x2 up to 2x4 inches are made with screwed ends; sizes 2 1/2x5 up to 3x6 inches have screwed inlet and flanged outlet. Sizes 3 1/2x7 and larger, flanged ends only.

## K. & T. LOW PRESSURE REGULATORS

NO. K—For Any Initial Pressure up to 150 Pounds Steam

This type is especially adapted for service on vacuum heating systems; also for atmospheric, or very low pressure heating systems where the maintained low pressures do not exceed 5 pounds.

When higher reduced pressure than this is to be maintained, the No. 0, or when used in connection with exhaust heating, the No. 1 regulator, should be used.

Size .....inches	1/2, 3/4	1	1 1/4	1 1/2	2
Price .....each	26.00	28.00	32.00	35.00	40.00
Size .....inches	2 1/2	3	3 1/2	4	5
Price .....each	50.00	60.00	70.00	80.00	105.00
Size .....inches	6	7	8	10	12
Price .....each	140.00	180.00	230.00	290.00	360.00

In ordering it is essential that we know the initial and the reduced pressures.

Sizes 1 1/2 inches and under have bronze bodies, and are made with screwed ends only. Sizes 2 to 6 inches, made with screwed or flanged ends, but screwed will be shipped unless otherwise ordered. Sizes 7 inches and larger are made with flanged ends only.

### No. 4 WITH EXPANDED OUTLET

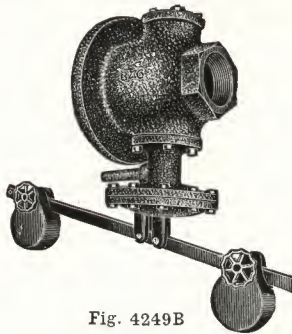


Fig. 4249B

No. 4 is similar in construction to No. 3, excepting that it has an expanded outlet and is especially adapted for service on vacuum heating systems; also for atmospheric or very low pressure heating systems, where reduced pressure maintained does not exceed 5 pounds. When higher reduced pressure is used, No. 2 should be used.

Size Inches	Price Each	Size Inches	Price Each
1 x 2	40.00	3 1/2 x 7	145.00
1 1/4 x 2 1/2	50.00	4 x 6	160.00
1 1/2 x 3	60.00	4 x 7	175.00
2 x 3	70.00	4 x 8	190.00
2 x 4	80.00	5 x 8	210.00
2 1/2 x 5	90.00	5 x 9	230.00
3 x 5	110.00	5 x 10	250.00
3 x 6	130.00	6 x 12	320.00

In ordering it is essential that we know the initial as well as the reduced pressures.

Flanged valves are furnished with standard flanges and drilling unless otherwise ordered. Sizes 1x2 to 2x4 inches have screwed ends, 2 1/2x5 to 3x6-inch sizes have inlet screwed and outlet flanged, 3 1/2x7 and larger have flanged ends.

It will be noticed that this type of regulator is provided with an opening in the diaphragm chamber for a pipe to be connected at a point some distance from the regulator where the pressure is about average on the low pressure side.

In making this connection do not fail to provide a globe valve to shut off or steady the pressure on diaphragm.

This valve (X) is to be used the same as a gauge cock to prevent excessive vibrations.

On the smaller size regulators, 1 1/2-inch size and under, this pipe connection is not required, as same is provided for through the bottom valve cap.

### No. 3 STRAIGHTWAY

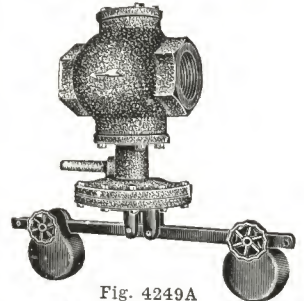


Fig. 4249A

### SECTIONAL VIEW LOW PRESSURE REGULATOR

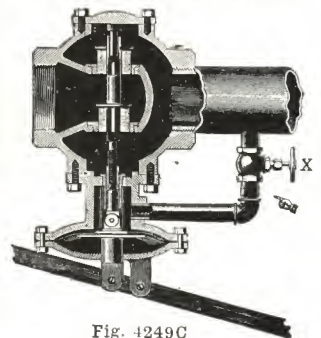


Fig. 4249C



## K. & T. BALANCED VALVES

BALANCED FLOAT VALVE

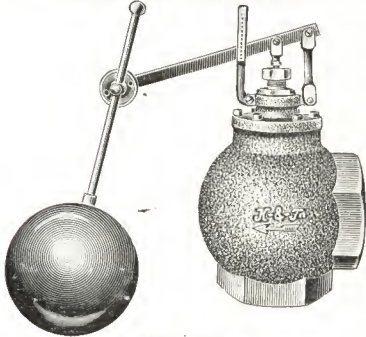


Fig. 1270A

BALANCED VALVE WITH LEVER

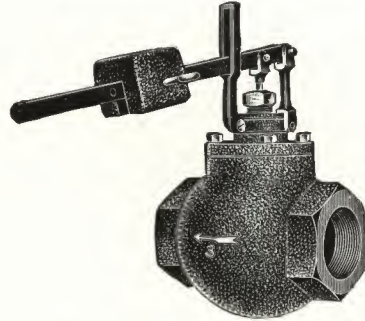


Fig. 1270B

### BALANCED FLOAT VALVES

For controlling the supply to tanks, etc., where the pressure does not affect the operation of valve. It is especially adapted for use in connection with the pressure regulator or pump governor, for automatic control on gravity or open tank system.

All valves have swivel yoke and guide with adjustment for limiting throw of valve, suitable for any working pressure up to 200 pounds.

#### HORIZONTAL, VERTICAL OR ANGLE WITH SEAMLESS COPPER FLOAT

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Size, Float .....inches	7	7	7	7	7	8	8	8
Price .....each	11.00	13.00	14.00	16.00	19.00	25.00	31.00	36.00
Size.....inches	4	$4\frac{1}{2}$	5	6	7	8	10	12
Size, Float .....inches	8	10	10	10	10	10	12	12
Price .....each	42.00	50.00	54.00	64.00	76.00	86.00	110.00	150.00

Flanged valves (2-inch size and upwards) are furnished with standard flanges and drilling, unless otherwise ordered. Companion flanges are extra, and only furnished when specially ordered.

### BALANCED VALVES WITH LEVER

This type of valve is especially adapted for service in controlling the supply to feed-water heaters, purifiers, open or closed tanks, pumps, boiler feeders, etc., requiring a quick open valve where the operation is not affected by the pressure, and is suitable for any working pressure up to 200 pounds.

All valves of this type are fitted with swivel yokes to permit lever being shifted to any direction; also have adjustment for limiting throw of valve. For closed tank systems we can furnish float, packing box, shaft, levers and connection rods with studs and turnbuckle adjustment.

Size.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Price .....each	6.50	8.00	9.50	11.00	14.00	19.00	25.00	30.00
Size.....inches	4	$4\frac{1}{2}$	5	6	7	8	10	12
Price .....each	35.00	40.00	45.00	55.00	65.00	75.00	100.00	140.00

Sizes  $1\frac{1}{2}$ -inch and under, made with screwed ends only, with bronze bodies. Sizes 2 to 6 inches, inclusive, made with screwed or flanged ends, but screwed end valves will be shipped if not ordered flanged. Sizes 7 inches and larger are made with flanged ends only. Flanged valves are furnished with standard flanges and drilling, unless otherwise ordered. Companion flanges are extra and are only so furnished when specially ordered.



## K. & T. PUMP GOVERNORS AND REGULATORS

### VACUUM PUMP GOVERNORS

This style of governor is especially adapted for regulating the speed of vacuum pumps, automatically controlling the amount of vacuum carried in a heating system.

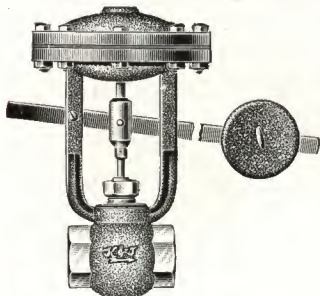


Fig. 5308A

The controlling valve being of the balanced type, as used on the pressure regulators, insures sensitive and positive action.

Size..... inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price..... each	25.00	25.00	30.00	32.50
Size..... inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price..... each	35.00	40.00	45.00	50.00

Sizes up to and including  $1\frac{1}{2}$  inches, have screwed ends, bronze bodies; sizes 2 inches and larger have iron bodies, made screwed or flanged, but screwed always furnished unless otherwise ordered.

In ordering, please state the vacuum that is to be maintained.

### IMPROVED PUMP GOVERNORS

Improved Pump Governors are designed for use on boiler feed pumps, waterworks, hydraulic elevators and all pumps working under a pressure. It is simple in construction and adjustment, absolutely automatic in operation, prevents over-pressure, saves fuel and is guaranteed to give close regulation; it has a piston and spring, actuated, double-seated balanced valve, controlled direct by the discharge pressure. It will positively regulate the pressure of the pump so that it cannot exceed the pressure at which it is set.

Size Inches	PRICE, EACH		
	Globe or Angle Screwed Ends	Globe, Only Screwed Ends	Globe or Angle Flanged Ends
$\frac{3}{4}$	28.00	.....	.....
1	30.00	.....	.....
$1\frac{1}{4}$	35.00	.....	.....
$1\frac{1}{2}$	43.00	.....	.....
2	.....	48.00	50.00
$2\frac{1}{2}$	.....	58.00	60.00
3	.....	70.00	75.00
$3\frac{1}{2}$	.....	.....	88.00
4	.....	.....	100.00
5	.....	.....	125.00
6	.....	.....	150.00



Fig. 5308B

In ordering, please state the maximum and minimum pressure of steam and water.

### AUTOMATIC PUMP REGULATOR AND CONDENSATION RECEIVER

Designed for use in connection with steam pump to automatically return the condensation from heating system, receiver or other apparatus, to the boiler; also for controlling the water level in receiving tanks or heating systems.



Fig. 5308C

No.	Inlet and Outlet Inches	Steam Valve Inches	Capacity Square Feet Radiation	Price Each
0	$1\frac{1}{2}$	$\frac{1}{2}$	5000	70.00
1	2	$\frac{3}{4}$	10000	100.00
2	$2\frac{1}{2}$	1	20000	130.00
3	3	$1\frac{1}{4}$	30000	150.00
4	4	$1\frac{1}{2}$	40000	200.00

It occupies a very small space, has large capacity, is detachable from steam pump and can be placed at the most convenient point, or at different levels and distances from the steam pump without affecting its operation.

## STEAM TRAPS

STANDARD



Fig. 9593A

CLASS C

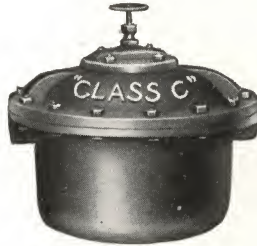


Fig. 9593B

NASON

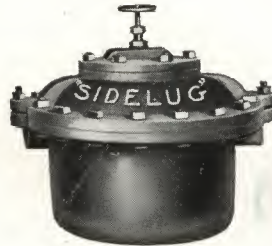
SIDELUG  
(Patented)

Fig. 9593C

## STANDARD

Diameter.....inches	12	15	18
Price.....each	23.00	36.00	54.00
Capacity, Lineal Feet of 1-inch Pipe.....	1500	3500	5000

## NASON

Number.....	1	2	3	4	5
Size of Pipe Connections.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Discharge per Minute.....pounds	$4\frac{1}{2}$	$6\frac{1}{2}$	10	$15\frac{1}{2}$	23
Capacity, Lineal Feet of 1-inch Pipe.....	1500	3450	5250	7650	12000
“ Square Feet of Direct Radiation.....	500	1150	1750	2550	4000
Diameter of Flange.....inches	$10\frac{3}{4}$	$14\frac{1}{4}$	$15\frac{3}{4}$	19	$24\frac{1}{4}$
Price, Classes B and C.....each	16.00	20.00	27.50	42.50	70.00
“ Sidelug.....“	16.85	21.30	29.25	45.50	74.75

Class B is designed for low pressure service, not exceeding 20 pounds pressure. Class C is designed for medium service for pressures between 20 and 70 pounds.

The Sidelug Trap embodies the Nason principles, is heavier in construction, and in addition has extension lugs over the inlet and outlet ports to obviate the blowing out of gasket at these points. For pressures between 40 and 150 pounds.

## REPAIRS

In ordering repairs be particular to note what style of trap they are for.

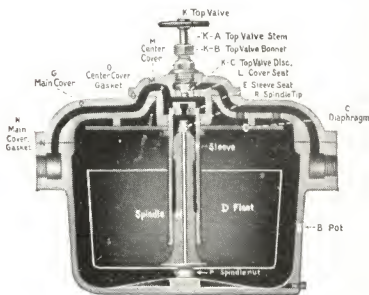


Fig. 9593D

Number of Trap.....	1	2	3	4	5
K—Top Valve.....each	1.00	1.40	1.60	2.00	2.10
KA—“ “ Stem only “	.50	.60	.70	.70	1.00
KB—“ “ Bonnet only “	.35	.40	.45	.45	.65
KC—“ “ Disc “	.....	.....	.....	.....	1.00
M—Center Cover.....“	.....	.....	.....	3.50	4.00
O—“ “ Gasket “	.....	.....	.....	.25	.40
G—Main “ “	2.40	3.60	5.00	8.20	15.60
N—“ “ Gasket “	.25	.40	.60	1.20	1.70
L—Cover seat.....“	.40	.40	.60	.70	.80
E—Sleeve “.....“	.30	.40	.50	.60	.70
C—Diaphragm.....“	.30	.50	.60	1.20	1.60
F—Sleeve.....“	1.20	1.60	2.00	2.70	4.50
H—Spindle.....“	1.00	1.40	1.70	2.50	3.50
B—Pot.....“	3.00	4.50	7.00	10.50	18.80
D—Float.....“	.80	1.00	1.00	2.00	2.50
P—Spindle Nut.....“	.30	.30	.30	.40	.40

R Spindle Tip (No. 5 only, detachable), .80



## THE DAVIS IMPROVED STEAM TRAP

For Any Working Pressure up to 200 Pounds

### EXTERIOR



Fig. 2669A

that the valves are balanced, it will operate equally well under any pressure—high, medium or low—without any alterations.

Having two valves, the capacity of this trap is greater than a single valve trap, which, when not balanced, must have a small area. As the valves are cone shaped they cannot stick or be affected in any way by oil, grease, sediment or any foreign matter which may enter the trap.

The valves and seats are renewable, and are made of Tobin Bronze, an extremely hard metal that will resist the cutting action of water many times longer than ordinary steam metal, which is almost universally used for this purpose.

All working parts are attached to the cover, and are removable with it without breaking either the inlet or outlet connections.

The Davis Improved Trap is provided with bosses, which are tapped  $\frac{3}{8}$  inch so a gauge glass can be attached if wanted. The gauge glass is furnished only as an extra. It is equipped with an air cock, and has a by-pass valve in the cover so steam can be given a free passage around the valves if desired. This trap will not return the water of condensation to the boiler, but it will discharge, approximately, 2 feet in height for every pound pressure under which it is operating, or against any lower pressure.

The Davis Improved Steam Trap will automatically relieve the water of condensation from a system of steam pipes, without the loss of steam.

It has double cone shaped balanced valves, which are operated by a high pressure seamless copper float tested to 300 pounds pressure, and which are effectively sealed at all times by several inches of water, thus preventing all leakage of steam.

It discharges continuously as fast as the water enters the trap and, due to the fact water enters equally well under any pressure—high,

### SECTIONAL VIEW

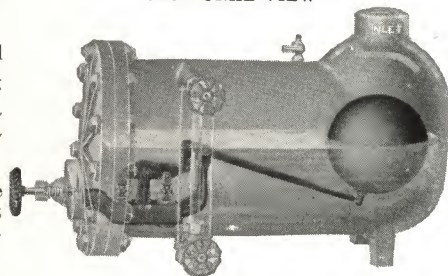


Fig. 2669B

No.	Price Each	Size Inlet and Outlet Inches	CAPACITY OF TRAP			Approximate Weight Pounds
			In Lineal Feet of 1-inch Pipe	In Square Feet of Radiating Surface	In Gallons per Hour at 10 Pounds Pressure	
00	15.00	$\frac{1}{2}$	1500	500	180	25
0	20.00	$\frac{3}{4}$	3000	1000	425	40
1	30.00	1	6500	2175	725	60
2	45.00	$1\frac{1}{4}$	15000	5000	1300	80
3	60.00	$1\frac{1}{2}$	20000	6675	2000	125
4	80.00	2	30000	10000	2775	235
5	100.00	$2\frac{1}{2}$	40000	13350	6000	240
6	125.00	3	60000	20000	19000	250



## K. & T. STEAM, GREASE AND OIL TRAPS

### IMPROVED CONTINUOUS DISCHARGE STEAM TRAPS

#### EXTERIOR

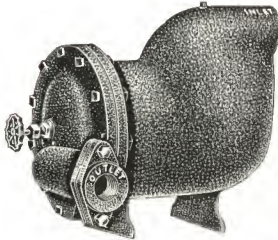


Fig. 932A

#### SECTIONAL

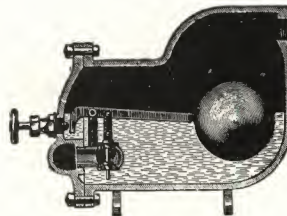


Fig. 932B

These traps operate under high or low pressure, are continuous in discharge, and have a double-seated cone shaped discharge valve. As it is situated at the bottom it is always water sealed, preventing escape of steam.

All traps are fitted with a handwheel on outside cover for by-pass, air blow-off and bosses, tapped out for water gauge.

They have few working parts, all interchangeable and attached to cover, being accessible by simply removing cover. They will discharge about two feet in height for every pound of pressure under which they are working.

Number .....	1	2	3	4	5	6
Capacity, lineal feet of 1-inch Pipe.....inches	1500	3000	6500	15000	20000	30000
Size, Inlet and Outlet....."	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price .....	24.00	30.00	45.00	65.00	85.00	110.00
" with Water Gauge....."	28.75	35.00	50.50	70.50	91.00	116.50

In ordering, state the highest limit of steam pressure and amount of radiation or water per hour; also, where for special purpose, state conditions of service trap is to operate under.

#### GREASE AND OIL TRAPS

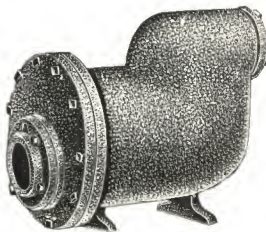


Fig. 932C

Especially designed and constructed for service on oil or grease separators on the exhaust line of condensing engines; also in connection with overflow of feed water heaters or any appliance or system where there is considerable quantity of oil, grease and water encountered, entrained with the steam supply. It is not intended for use on vacuum or condensing systems.

This trap has the full capacity of the pipe connection, and all working parts are attached to the cover, which has flange union connection above 2-inch size. All traps are fitted with bosses, tapped out for water gauge, which

will be furnished when ordered.

Number .....	1	2	3	4	5	6	7	8
Price .....	30.00	45.00	65.00	85.00	110.00	125.00	150.00	185.00
Inlet and Outlet .....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4

1 to 4-inch, inclusive, screwed ends. 5-inch or larger, flanged ends.

These traps are not intended for use on vacuum condensing system.

## BRASS AND IRON BODY EXPANSION JOINTS

## IRON BODY

BRASS

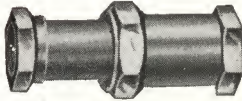


Fig. 785A

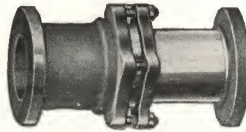


Fig. 785B

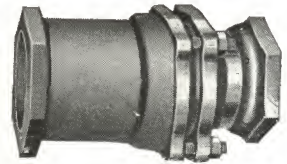


Fig. 785C

## BRASS—SCREWED, STANDARD TRAVERSE

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Traverse.....inches	2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/2	2 1/2	2 3/4
Price.....each	1.50	2.20	2.75	4.00	5.00	8.00	17.50	24.00

## BRASS—SCREWED, SPECIAL TRAVERSE

Traverse	Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
4 inches	Price.....each	3.80	4.00	4.90	6.30	7.40	9.10	.....
6 " "	" " " " " "	.....	8.25	9.00	10.00	11.50	13.50	24.00
8 " "	" " " " " "	.....	9.00	10.00	11.25	13.00	15.50	27.00
10 " "	" " " " " "	.....	9.75	11.00	12.50	14.50	17.50	30.00
12 " "	" " " " " "	.....	10.50	12.00	13.75	16.00	19.50	33.00

## IRON BODY—SCREWED, STANDARD TRAVERSE

Size..inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	9	10	12
Traverse..in.	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2	4	5	6	7	7	7	8
Price...each	7.00	8.00	10.00	14.00	18.00	30.00	38.00	45.00	70.00	100.00	110.00	160.00	225.00

## IRON BODY—SCREWED, SPECIAL TRAVERSE

Traverse	Size.....inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8
6 inches	Price.....each	11.00	13.00	17.50	25.00	30.00	40.00	45.00	55.00	.....	.....
10 " "	" " " " " "	16.00	19.00	25.00	35.00	42.00	52.00	62.00	80.00	100.00	140.00
12 " "	" " " " " "	18.50	22.00	29.00	40.00	48.00	60.00	70.00	92.50	115.00	160.00
14 " "	" " " " " "	21.00	25.00	33.00	45.00	54.00	67.00	78.00	105.00	130.00	.....
16 " "	" " " " " "	23.50	28.00	37.00	50.00	60.00	75.00	86.00	117.50	145.00	.....
18 " "	" " " " " "	26.00	31.00	41.00	55.00	66.00	.....	94.00	130.00	.....	.....

## IRON BODY—FLANGED, STANDARD TRAVERSE

Size.....inches	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Traverse.....inches	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2	4	5
Diameter of Flanges....."	6	7	7 1/2	8 1/2	9	9 1/4	10	11
Price.....each	15.00	16.00	18.50	25.00	30.00	40.00	48.00	55.00

Size.....inches	7	8	9	10	12	14	15	16
Traverse.....inches	6	7	7	7	8	10	10	10
Diameter of Flanges....."	12 1/2	13 1/2	15	16	19	21	22 1/4	23 1/2
Price.....each	80.00	110.00	120.00	175.00	250.00	500.00	550.00	600.00

## IRON BODY—FLANGED, SPECIAL TRAVERSE

Traverse	Size....in.	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	10	12
6 in.	Price, each	18.00	20.00	25.00	35.00	40.00	50.00	55.00	65.00	.....	.....	.....	.....
10 " "	" " " "	23.00	26.00	32.50	45.00	52.00	63.00	72.00	90.00	112.00	150.00	225.00	300.00
12 " "	" " " "	25.50	29.00	36.50	50.00	58.00	70.00	80.00	102.50	127.00	170.00	255.00	350.00
14 " "	" " " "	28.00	32.00	40.50	55.00	64.00	77.00	88.00	115.00	142.00	190.00	285.00	400.00
16 " "	" " " "	30.50	35.00	44.50	60.00	70.00	85.00	96.00	127.50	157.00	210.00	315.00	.....
18 " "	" " " "	33.00	38.00	48.50	65.00	76.00	.....	104.00	140.00	172.00	230.00	350.00	.....

The expansion will average about 2 to 3 inches in 100 feet of pipe.



**EXTRA HEAVY EXPANSION JOINTS**

For Steam Working Pressures up to 250 Pounds

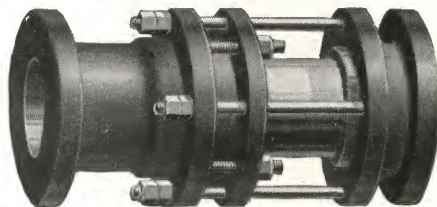
**IRON BODY—WITH TIE RODS—BRASS SLEEVE**

Fig. 1583A

**SCREWED**

Size.....inches	2	2½	3	3½	4	5
Traverse.....inches	2½	2½	2¾	3	3¼	4
End to End, Opened....."	15½	15¾	16⅞	18	18⅞	21⅝
Price, Faced and Drilled.....each	30.00	40.00	50.00	60.00	70.00	80.00
Size.....inches	6	7	8	9	10	12
Traverse.....inches	5	6	7	7	7	8
End to End, Opened....."	24⅞	27⅞	30¾	31¾	32¾	36⅝
Price, Faced and Drilled.....each	100.00	120.00	145.00	190.00	240.00	290.00

**FLANGED**

Size.....inches	2	2½	3	3½	4	5
Traverse.....inches	2½	2½	2¾	3	3¼	4
Face to Face, Opened....."	15½	16	17⅝	18⅞	19½	22⅝
Diameter of Flanges....."	6½	7½	8¼	9	10	11
Price, Faced and Drilled.....each	35.00	45.00	55.00	65.00	75.00	85.00
Size.....inches	6	7	8	9	10	12
Traverse.....inches	5	6	7	7	7	8
Face to Face, Opened....."	25¾	28½	31½	31⅝	33⅝	37⅞
Diameter of Flanges....."	12½	14	15	16¼	17½	20½
Price, Faced and Drilled.....each	105.00	125.00	150.00	200.00	250.00	300.00
Size.....inches	14	15	16	18	.....	.....
Traverse.....inches	10	10	10	10	.....	.....
Face to Face, Opened....."	43	43⅞	45	46⅞	.....	.....
Diameter of Flanges....."	23	24½	25½	28	.....	.....
Price, Faced and Drilled.....each	500.00	500.00	750.00	1000.00	.....	.....



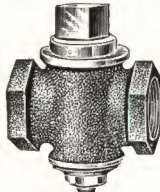
**BRASS STEAM COCKS AND WRENCHES****SQUARE HEAD**

Fig. 757A

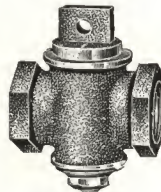
**STANDARD****FLAT HEAD**

Fig. 757B

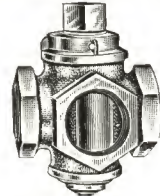
**THREE-WAY WITH CHECK**

Fig. 757C

**SQUARE AND FLAT HEAD**

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price .....	each	.85	1.00	1.25	1.70	2.35	3.70	4.85	7.30	14.50	22.50	38.50	50.00
" Square Head with Check "		....	....	1.40	1.90	2.55	3.95	5.15	7.65	....	....	....	....

\*Made to order only, at a special discount.

**THREE-WAY SQUARE HEAD—WITH CHECK**

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price .....	each	1.80	2.10	2.50	3.00	3.75	5.75	7.15	11.00	18.75	26.00

**"T" HANDLE**

Size .....	inches	1/4	3/8	1/2	3/4	1
Price .....	each	.85	.85	1.00	1.25	1.70
" with Check .....		....	1.00	1.15	1.40	1.90
						2.55

**FLAT HEAD—MALE AND FEMALE**

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Price .....	each	1.35	1.45	2.00	2.50	3.00	5.35	6.75	9.85

**SPECIAL SQUARE AND FLAT HEAD**

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price .....	each	1.25	1.70	2.35	3.70	4.85	7.30	14.50	22.50

**EXTRA HEAVY SQUARE HEAD—For 250 Pounds Working Pressure**

Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price .....	each	1.40	1.75	1.75	2.40	3.60	6.00	7.75	11.50	23.00	35.00

**FLANGED—SQUARE OR FLAT HEAD**

Size .....	inches	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Diameter of Flanges, inches		3 1/2	4	4 1/2	5	6	7	7 1/2	8 1/2	9	10	11
Price .....	each	5.50	7.30	9.70	11.75	18.00	27.50	43.00	62.00	84.00	150.00	275.00

These cocks are made to order only.

**MALLEABLE IRON WRENCHES****SQUARE HEAD**

Fig. 757D

**FLAT HEAD**

Fig. 757E

**SQUARE HEAD**

Number .....	1	2	3	4	5	6	7	8	9	10	10
Size .....	inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price .....	each	.05	.06	.07	.09	.14	.19	.25	.44	.56	1.00

**FLAT HEAD**

Number .....	1	2	3	5	6	7	8
Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2
Price .....	each	.07	.09	.14	.25	.44	.56

**BRASS GAS SERVICE AND METER COCKS****STRAIGHTWAY SERVICE COCKS****TEE HANDLE**

Fig. 9783A

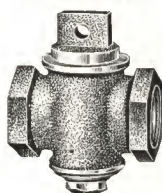
**FLAT HEAD**

Fig. 9783B

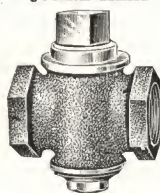
**SQUARE HEAD**

Fig. 9783C

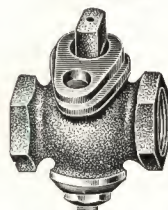
**FLAT HEAD  
LOCK WING**

Fig. 9783D

**WITHOUT CHECK—Tee Handle, Flat or Square Head**

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Standard .....	each	.90	.90	1.00	1.10	1.30	2.10	3.25	4.60	8.00	17.50	27.00
" Extra .....	"	1.10	1.10	1.20	1.30	1.80	3.00	4.50	6.50	11.20	24.50	37.80

**WITH CHECK—Tee Handle, Flat or Square Head**

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, Standard .....	each	1.15	1.30	1.55	2.40	3.70	5.10	8.75	18.50	28.25
" Extra .....	"	1.35	1.50	2.05	3.30	4.95	7.00	11.95	25.50	39.05

**LOCK WING—Flat or Square Head**

Size .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Standard .....	each	1.20	1.30	1.40	1.60	2.50	3.85	5.35	9.00
" Extra .....	"	1.40	1.50	1.60	2.10	3.40	5.10	7.25	12.20

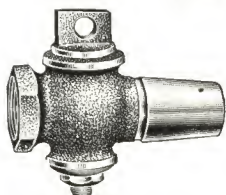
**PLAIN**

Fig. 9783E

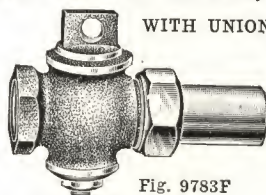
**STRAIGHTWAY METER COCKS, FLAT HEAD LOCK WING****WITH UNION**

Fig. 9783F

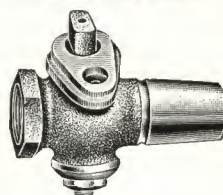
**PLAIN**

Fig. 9783G

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, without Check, Standard .....	each	1.00	1.10	1.30	2.10	3.25	4.60	8.00
" " Extra .....	"	1.20	1.30	1.80	3.00	4.50	6.50	11.20
" with Check, Standard .....	"	1.15	1.30	1.55	2.40	3.70	5.10	8.75
" " Extra .....	"	1.35	1.50	2.05	3.30	4.95	7.00	11.95

**WITH UNION**

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, without Check, Standard .....	each	1.55	1.70	2.05	3.10	4.65	6.70	10.90
" " Extra .....	"	1.75	1.90	2.55	4.00	5.90	8.60	14.10
" with Check, Standard .....	"	1.70	1.90	2.30	3.40	5.10	7.20	11.65
" " Extra .....	"	1.90	2.10	2.80	4.30	6.35	9.10	14.85

**LOCK WING**

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Standard .....	each	1.30	1.40	1.60	2.50	3.85	5.35	9.00
" Extra .....	"	1.50	1.60	2.10	3.40	5.10	7.25	12.20

Square or tee head meter cocks same lists as above.



## IRON COCKS

SQUARE HEAD

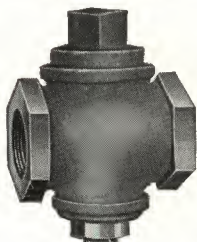


Fig. 8511A

FLAT HEAD

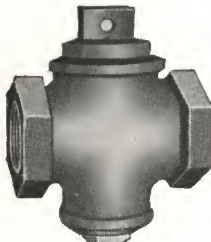


Fig. 8511B

THREE-WAY

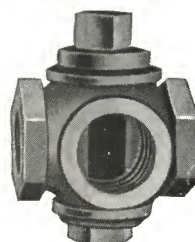


Fig. 8511C

### STANDARD

For 125 Pounds Working Pressure

Size .....	inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, All Iron, Screwed .....	each	.90	1.05	1.30	1.60	*1.95	2.70	4.40
“ “ “ Flanged .....	“	.....	2.25	2.75	3.25	4.25	6.25	.....
“ with Brass Plug, Screwed .....	“	1.30	1.60	1.90	2.65	3.75	5.25	8.75
“ “ “ “ Flanged .....	“	.....	.....	3.00	3.75	5.00	7.00	10.50

Size .....	inches	3	$3\frac{1}{2}$	4	5	6	8	.....
Price, All Iron, Screwed .....	each	6.75	12.00	15.50	32.00	45.00	100.00	.....
“ “ “ Flanged .....	“	9.50	15.00	19.00	36.00	50.00	107.00	.....
“ with Brass Plug, Screwed .....	“	13.00	27.50	36.50	67.00	94.00	200.00	.....
“ “ “ “ Flanged .....	“	15.75	30.00	40.00	70.00	100.00	210.00	.....

These cocks will be furnished with check when so ordered, at a special price.

### EXTRA HEAVY FLAT HEAD

For 200 Pounds Working Pressure

With Cast Iron Plug, Nut and Washer

Size .....	inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Price, All Iron .....	each	1.15	1.25	1.75	2.10	2.80	3.65	6.50	9.00	22.50
“ with Brass Washer .....	“	1.25	1.40	2.00	2.45	3.20	4.15	7.25	10.00	26.00
“ “ “ Plug .....	“	1.70	2.25	2.80	3.85	5.60	7.00	13.25	19.00	56.00

### THREE-WAY—SCREWED

For 125 Pounds Working Pressure

Size .....	inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price, All Iron .....	each	1.65	1.80	2.05	2.65	3.65	5.35	7.50	14.00	19.00	36.50	52.00
“ with Brass Washer .....	“	1.80	2.05	2.40	3.05	4.15	6.10	8.50	16.00	22.50	42.50	60.00
“ “ “ Plug .....	“	2.20	2.40	3.10	4.50	6.25	9.75	13.75	30.00	40.00	71.50	100.00

These cocks will be furnished with check when so ordered, at a special price.

Flanged three-way cocks will be furnished to order. Prices on application.



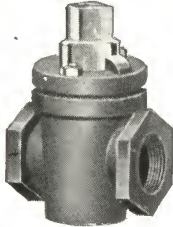
**VULCANIZED ASBESTOS PACKED IRON COCKS****SCREWED****STRAIGHTWAY**

Fig. 759A

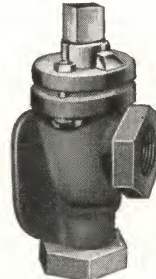
**ANGLE**

Fig. 759B

**STRAIGHTWAY**

Size..... inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2
Price, Standard..... each	1.30	1.30	1.45	1.60	2.10	2.50	3.50	4.75
“ Heavy..... “	....	2.00	2.00	2.00	2.50	3.00	4.25	5.75
“ Extra Heavy..... “	....	....	....	2.40	3.00	3.50	5.00	6.75
Size..... inches	2	2 1/2	3	3 1/2	4	5	6	....
Price, Standard..... each	7.00	12.00	18.00	27.00	30.00	45.00	60.00	....
“ Heavy..... “	8.50	14.50	21.50	32.50	36.00	....	....	....
“ Extra Heavy..... “	10.00	17.00	26.00	38.00	42.00	....	....	....

**ANGLE**

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Standard... each	1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00

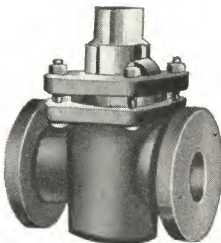
**FLANGED****STRAIGHTWAY**

Fig. 759C

**ANGLE**

Fig. 759D

**STRAIGHTWAY**

Size..... inches	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Price, Standard..... each	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	60.00
“ Heavy..... “	3.00	4.25	5.75	8.50	14.50	21.50	32.50	36.00	....	....
“ Extra Heavy..... “	3.50	5.00	6.75	10.00	17.00	26.00	38.00	42.00	....	....

**ANGLE**

Size..... inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Standard..... each	1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00

The 2 1/2 to 6-inch have four-bolt glands.

## AIR COCKS

Steam Metal

## "T" HANDLE

## STRAIGHT NOSE

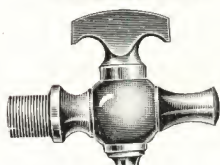


Fig. 787A

## MALE BOTH ENDS

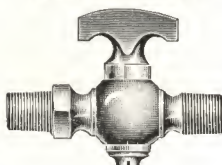


Fig. 787B

## BIBB NOSE

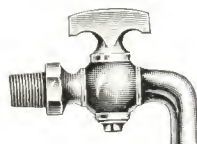


Fig. 787C

## STRAIGHT NOSE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price .....	each	.40	.45	.50	.60	.90	1.15

## MALE BOTH ENDS

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.55	.65	.75	.90

## BIBB NOSE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Plain Nose .....	each	.70	.80	.90	1.00
" Threaded Nose .....	"	.80	1.00	1.10	1.35

## LEVER HANDLE

## STRAIGHT NOSE

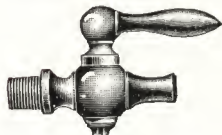


Fig. 787D

## MALE BOTH ENDS

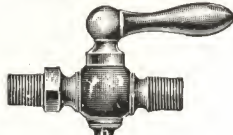


Fig. 787E

## BIBB NOSE

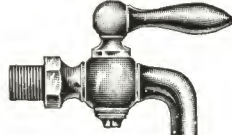


Fig. 787F

## STRAIGHT NOSE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price .....	each	.55	.60	.65	.75	1.05	1.30

## MALE BOTH ENDS

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.70	.80	.90	1.05

## BIBB NOSE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Plain Nose .....	each	.85	.95	1.05	1.15
" Threaded Nose .....	"	.95	1.15	1.25	1.50

## AIR AND GAUGE COCKS

## AIR COCKS

## "T" HANDLE

MALE AND FEMALE

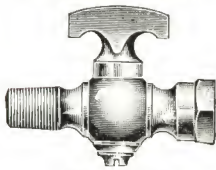


Fig. 1352A

FEMALE BOTH ENDS

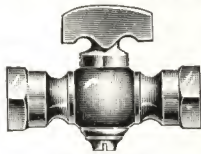


Fig. 1352B

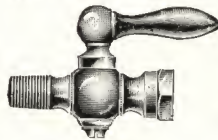
LEVER HANDLE  
MALE AND FEMALE

Fig. 1352C

FEMALE BOTH ENDS

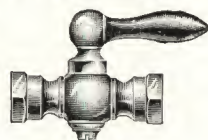


Fig. 1352D

## "T" HANDLE, MALE AND FEMALE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.75	.85	.95	1.15

## "T" HANDLE, FEMALE BOTH ENDS

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.75	.85	.95	1.15

## LEVER HANDLE, MALE AND FEMALE

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.90	1.00	1.10	1.30

## LEVER HANDLE, FEMALE BOTH ENDS

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price .....	each	.90	1.00	1.10	1.30

## GAUGE COCKS

PLAIN

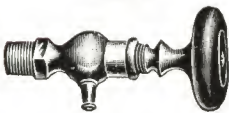


Fig. 1352E

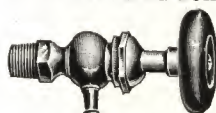
COMPRESSION  
WITH STUFFING BOX

Fig. 1352F

BALL

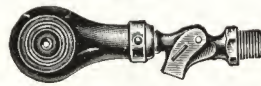


Fig. 1352G

Size, Plain .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, Plain .....	each	.85	.95	1.00	1.25
“ with Stuffing Box .....	“	....	1.20	1.30	1.45
“ Ball .....	“	....	1.00	1.00	1.10



## STEAM GAUGE SIPHONS, ETC.

No. 1



Fig. 9792A

No. 2



Fig. 9792B

No. 3

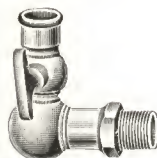


Fig. 9792C

No. 4



Fig. 9792D

Number .....	1	2	3	4
Price, Brass Finished .....	1.00	1.25	1.50	1.50
" " Nickel-plated .....	1.50	1.75	2.00	2.00

## IRON SIPHONS



Fig. 9792E

Size .....	inches	1/4
Price, Iron .....	each	.50
" Brass Finished .....	"	1.00
" Nickel-plated .....	"	1.50

STANDARD



Fig. 9792F

## MARINE FUSIBLE PLUGS

These plugs are filled with Banca Tin, fulfilling in every respect the requirements of the Steamboat Inspection Service of the United States Government. In ordering, specify whether to be inserted from inside or outside of boiler shell.

LONG

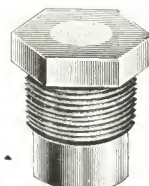


Fig. 9792G

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, Standard .....	each	.60	.75	1.00	1.50	2.00	3.00
" Long .....	"	1.20	1.50	2.00	3.00	4.00	6.00

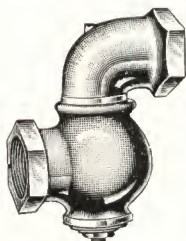


Fig. 9792H

## BRASS SWING JOINTS

Size .....	inches	1/4	3/8	1/2	3/4
Price, Rough .....	each	1.90	2.20	2.50	3.50
" Finished .....	"	2.30	2.70	3.00	4.00
Size .....	inches	1	1 1/4	1 1/2	2
Price, Rough .....	each	5.00	6.50	9.00	15.40
" Finished .....	"	5.75	7.25	10.00	17.40

## GAUGES AND THERMOMETERS

## GAUGES

## ALTITUDE

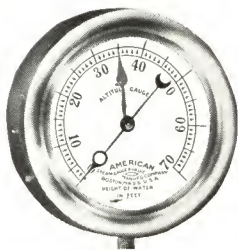


Fig. 7810A

## HYDRAULIC

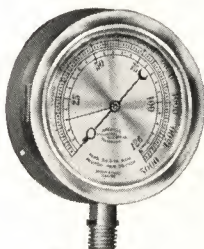


Fig. 7810B

## TEST

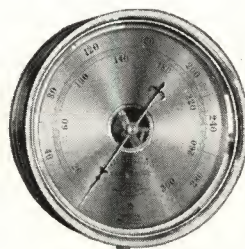


Fig. 7810C

## ALTITUDE

Size of Dial.....inches	3½	4½	5	5½	6	6¾	8½	10	12
Price, Iron Case, Brass Ring.....each	10.00	12.00	12.00	14.00	16.00	20.00	30.00	40.00	60.00
“ “ “ N. P. “ “	10.18	12.20	12.20	14.25	16.50	20.60	30.75	41.00	61.50
“ Brass Case..... “	12.00	14.00	14.00	16.00	20.00	25.00	40.00	50.00	80.00
“ Nickel-plated Case..... “	12.75	15.00	15.00	17.25	21.50	27.00	42.50	53.00	84.00

Prices include cock. Also furnished with black dial, when specified, at same price.

## HYDRAULIC

The 4½ and 5-inch sizes are for pressures not exceeding 2500 pounds. All other sizes are for pressures from 500 to 20000 pounds per square inch. No extra charge for marking tons on ram on dials. A check valve should be used. Cocks are extra.

Size of Dial.....inches	4½	5	6	6¾	8½	10	12
Price, Iron Case, Brass Ring.....each	25.00	30.00	35.00	50.00	70.00	90.00	110.00
“ “ “ N. P. “ “	25.50	30.50	35.50	50.60	70.75	91.00	111.50
“ Brass Case..... “	30.00	35.00	40.00	60.00	80.00	100.00	125.00
“ Nickel-plated Case..... “	31.00	36.00	41.50	62.00	82.50	103.00	129.00

## TEST

Size of Dial.....inches	3	3½	4½	5½	6	6¾	8½	10
Price, Brass Case.....each	14.00	14.00	16.00	20.00	25.00	30.00	40.00	50.00
“ Nickel-plated Case..... “	14.60	14.75	17.00	21.25	26.50	32.00	42.50	53.00

When ordering, do not fail to state the pressure to which you wish the gauge graduated. Test gauges should be graduated to at least 50 per cent beyond the highest working pressure.

## STRAIGHT



Fig. 7810D

## THERMOMETERS

For Steam and Hot Water Heating  
Furnished with Black Metal Scale

Price, Straight, Hot Water.....each	3.00
“ Angle, “ “ “ “ “	3.50
“ Straight, Steam, with Pressure Scale.... “	3.25
“ Angle, “ “ “ “ “	3.75

## ANGLE

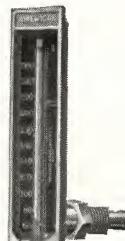


Fig. 7810E

## GAUGES

PRESSURE

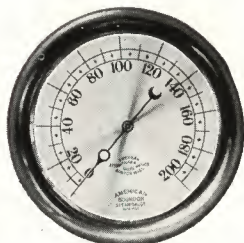


Fig. 7811A

PRESSURE AND VACUUM

VACUUM

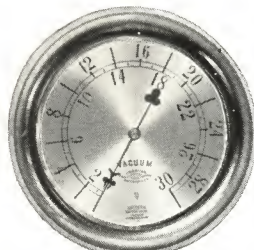


Fig. 7811B

Size of Dial .....	2	2½	3	3½	4½	5
Price, Iron Case, Brass Ring .....	6.00	6.00	6.00	7.00	8.00	8.00
“ “ “ N. P. “ .....	6.15	6.15	6.15	7.18	8.20	8.20
“ Brass Case .....	8.00	8.00	8.00	9.00	10.00	11.00
“ Nickel-plated Case .....	8.60	8.60	8.60	9.75	11.00	12.00

Size of Dial .....	5½	6	6¾	8½	10	12
Price, Iron Case, Brass Ring .....	10.00	13.00	16.00	22.00	32.00	50.00
“ “ “ N. P. “ .....	10.25	13.50	16.60	22.75	33.00	51.50
“ Brass Case .....	12.00	16.00	20.00	30.00	40.00	75.00
“ Nickel-plated Case .....	13.25	17.50	22.00	32.50	43.00	79.00

Prices include cock, except the 2 and 2½-inch sizes. State working pressure when ordering pressure gauges.

HOUSE HEATER

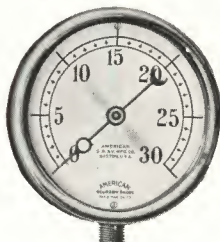


Fig. 7811C

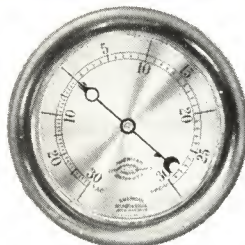
COMPOUND  
PRESSURE AND VACUUM

Fig. 7811D

HOUSE HEATER

Size of Dial .....	3½	4½	5
Price, Iron Case, Brass Ring, including Cock .....	7.00	8.00	8.00
“ “ “ N. P. “ .....	7.18	8.20	8.20

COMPOUND PRESSURE AND VACUUM

Size of Dial .....	3½	4½	5-5½	6	6¾	8½	10	12
Price, Iron Case, Brass Ring, ea. ....	10.00	12.00	14.00	16.00	20.00	30.00	40.00	60.00
“ “ “ N. P. “ .....	10.18	12.20	14.25	16.50	20.60	30.75	41.00	61.50
“ Brass Case .....	12.00	14.00	16.00	20.00	25.00	40.00	50.00	80.00
“ Nickel-plated Case ... “ .....	12.75	15.00	17.25	21.50	27.00	42.50	53.00	84.00

Price includes cock. State pressure when ordering.



## EXHAUST HEADS

SORGE

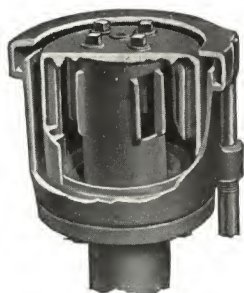


Fig. 3387A

LYMAN

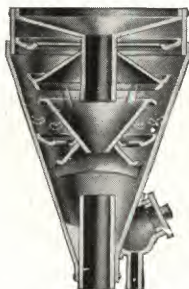


Fig. 3387B

## SORGE

These exhaust heads are made of cast iron only. They are efficient, durable and very simple. They are a perfect oil and water eliminator. No leakage possible. Only the dry steam escapes. They have large passages, which prevent back pressure. They have a positive impact, the recognized best method for removing all oil and water from steam.

Size of Exhaust Pipe.....inches	3	4	5	6	7	8	10
Weight .....pounds	38	61	100	115	145	190	340
Price .....each	30.00	40.00	50.00	60.00	75.00	90.00	125.00
Size of Exhaust Pipe.....inches	12	14	16	18	20	24	....
Weight .....pounds	442	535	830	1065	1200	1700	....
Price .....each	150.00	200.00	250.00	300.00	360.00	600.00	....

Companion flange furnished with each exhaust head up to and including 12 inches in size, with necessary gasket and bolts. For sizes intermediate between these, the next larger size must be used, and we will furnish properly tapped companion flange. No companion flange furnished for sizes larger than 12-inch, but bottom flange is drilled and tapped as per above list, unless especially ordered otherwise.

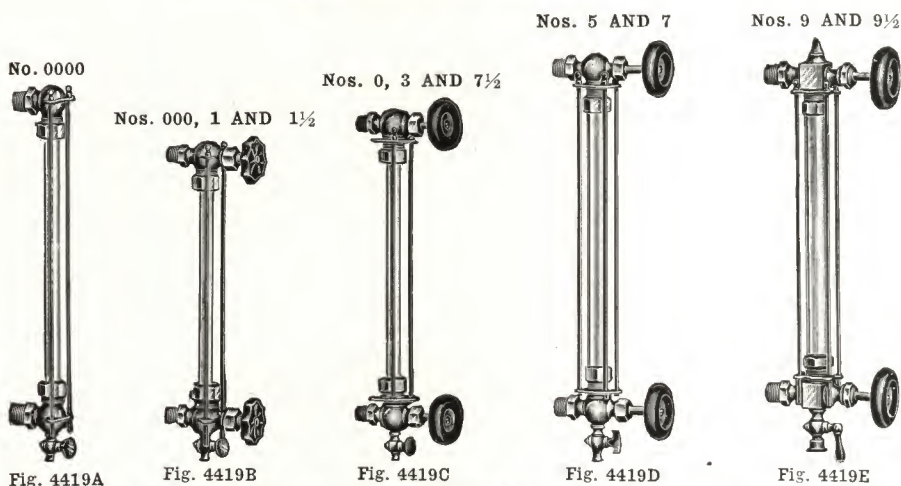
## LYMAN

These exhaust heads completely stop the emission of water and grease from outlet of exhaust pipe, which is so damaging to roofs, wall, etc. The steam escapes dry. No back pressure. The only head made with slip flange (standard) with expansion drip, which will not leak or tear loose in cold weather. Each head fitted with brass handhole to clean same without taking head down.

Size of Exhaust Pipe.....inches	1to1½	2to2½	3to3½	4to4½	5	6
Weight .....pounds	18	22	30	40	55	75
Price .....each	20.00	25.00	30.00	40.00	50.00	60.00
Size of Exhaust Pipe.....inches	7	8	9	10	12	14
Weight .....pounds	100	125	160	190	240	300
Price .....each	75.00	90.00	105.00	125.00	150.00	200.00
Size of Exhaust Pipe.....inches	16	18	20	22	24	....
Weight .....pounds	460	550	700	900	1000	....
Price .....each	250.00	300.00	....	....	....	....

4½-inch and smaller, screwed; larger, flanged.

## WATER GAUGES



### EXPANSION TANK GAUGES, BRONZED ROUND BODY—Two Guards

Number .....	0000
Size, Thread .....	inches 1½
" Glass .....	" 5/8x12
Price .....	each 2.60

### WATER GAUGES, BRONZED ROUND BODY—Iron Wheels, Two Guards

Number .....	000	1	1½
Size, Thread .....	inches 3/8	1/2	3/4
" Glass .....	" 5/8x8 or 10	5/8x12	3/4x16
Price .....	each 2.75	3.00	4.50

### WATER GAUGES, FINISHED ROUND BODY—Wood Wheels, Two Guards

Number .....	0	3	7½
Size, Thread .....	inches 3/8	1/2	3/4
" Glass .....	" 5/8x8 or 10	5/8x12	3/4x16
Price .....	each 3.75	4.25	5.50

### WATER GAUGES, FINISHED ROUND BODY—Wood Wheels, Four Guards

Number .....	5	7
Size, Thread .....	inches 1½	3/4
" Glass .....	" 5/8x12	3/4x16
Price .....	each 5.00	6.25

### WATER GAUGES, FINISHED SQUARE BODY—Wood Wheels, Four Guards

Number .....	9	9½
Size, Thread .....	inches 1½	3/4
" Glass .....	" 5/8x12	3/4x16
Price .....	each 6.00	8.00

## STANDARD WATER COLUMNS AND COMBINATION WATER AND STEAM GAUGES

COLUMN  
ONLY  
Nos. 1  
TO 4

### WATER COLUMNS, ONLY

Nos. 1, 2, 3 and 4 are standard sizes as usually called for. Nos. 0 and 00 are designed especially for house heating boilers and have no holes for gauge cocks. With Nos. 00, 5 and 6, the connection to boiler is made from top and bottom of column.



No.	Center to Center Boiler Conn's Inches	Center to Center Water Gauge Conn's Inches	Center to Center Gauge Cocks Inches	Extreme Length Inches	Tapped for Boiler Conn's Inches	Tapped for Water Gauge Conn's Inches	Tapped for Gauge Cocks Inches	Top and Bottom Tapped Inches	Price Each
00	....	13	....	17 $\frac{5}{8}$	....	1 $\frac{1}{2}$	....	1 $\frac{1}{4}$	3.00
0	....	9 $\frac{1}{2}$	....	13 $\frac{1}{4}$	1 $\frac{1}{2}$	3 $\frac{1}{8}$	....	1 $\frac{1}{4}$ x 3 $\frac{3}{4}$	1.50
1	10	10	3 $\frac{3}{8}$	13 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{3}{8}$	3 $\frac{3}{4}$	2.75
2	12 $\frac{1}{2}$	12 $\frac{1}{2}$	3 $\frac{3}{4}$	16 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1	4.00
3	14	14	4 $\frac{1}{4}$	19	*3 $\frac{3}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{2}$	3 $\frac{3}{4}$	6.00
4	18	18	4	22 $\frac{3}{8}$	1 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	8.00
5	....	13 $\frac{3}{8}$	3 $\frac{5}{8}$	20 $\frac{1}{4}$	....	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	7.50
6	....	17 $\frac{1}{8}$	4 $\frac{1}{2}$	30 $\frac{1}{4}$	....	3 $\frac{3}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	12.00

\*No. 3 water column can also be supplied tapped 1 $\frac{1}{2}$  and 1 $\frac{1}{4}$ -inch for boiler

Fig. 3133A connection.

### COMBINATION GAUGES COMPLETE

Number.....	1	2	3	4
Number of Gauge Cocks...	2	3	3	3
Size of Gauge Cocks, inches	3 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{3}{4}$
Number of Steam Gauges..	1	1	1	1
Size of Steam Gauges, inches	5	5	6	6
" " Nipple..... "	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$
" " Globe Valve... "	1 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$
" " Syphon..... "	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$
" " Bushings..... "	1 $\frac{1}{2}$ x 1 $\frac{1}{4}$	3 $\frac{3}{4}$ x 1 $\frac{1}{4}$	1 x 1 $\frac{1}{4}$ }	1 $\frac{1}{4}$ x 1 $\frac{1}{4}$ }
	.....	3 $\frac{3}{4}$ x 1 $\frac{1}{2}$	1 x 3 $\frac{3}{4}$ }	1 $\frac{1}{4}$ x 3 $\frac{3}{4}$ }
Price, Complete.....each	25.00	40.00	50.00	60.00

For other combinations than above, add the price of trimmings as shown in the above list, or prices of any other trimmings, as may be preferred.

The prices given are suitable for pressures up to and including 175 pounds. For pressures up to 250 pounds, the same bodies may be used, but extra heavy gauge cocks and water gauges must be used.

When not otherwise specified, complete combination gauges will be trimmed and furnished as in above list.

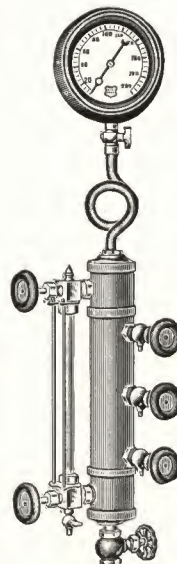


Fig. 3133B



## GAUGE GLASSES AND ACCESSORIES

## SCOTCH GAUGE GLASSES



Fig. 4753A

Length.....inches	10	11	12	13	14	15	16	17	18
Price, $\frac{1}{2}$ and $\frac{5}{8}$ -in...per dozen	3.00	3.24	3.60	3.84	4.20	4.44	4.80	5.04	5.40
" $\frac{3}{4}$ -inch....."	3.60	3.96	4.32	4.80	5.16	5.52	5.88	6.24	6.60
" $\frac{7}{8}$ "....."	5.04	5.64	6.12	6.60	7.08	7.56	8.16	8.64	9.12
" 1 "....."	6.12	6.72	7.32	7.92	8.52	9.12	9.72	10.32	10.92

Length.....inches	19	20	22	24	30	36	48	60	72
Price, $\frac{1}{2}$ and $\frac{5}{8}$ -in...per dozen	5.64	6.00	6.60	7.20	9.00	10.80	14.52	18.12	21.84
" $\frac{3}{4}$ -inch....."	7.08	7.44	8.16	8.88	11.16	13.44	18.00	22.56	27.12
" $\frac{7}{8}$ "....."	9.60	10.20	11.16	12.12	15.24	18.24	24.36	30.48	36.48
" 1 "....."	11.52	12.12	12.14	14.64	18.24	21.96	29.16	36.48	43.80

60x1 $\frac{1}{4}$  inches, per dozen, 60.00. 72x1 $\frac{1}{2}$  inches, per dozen, 108.00.

## GAUGE GLASS WASHERS

SQUARE WASHER

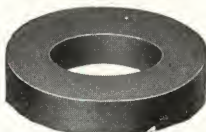


Fig. 4753B

ROUND WASHER



Fig. 4753C

"GILBERT'S" PRESERVER



Fig. 4753D

Size.....inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Price, Square, Half-Round or Round Washers....per dozen	.25	.25	.35	.50
" "Gilbert's" Self-Packing Preservers.....per box	*.60	*.60	*.60	*.60

\*Sizes  $\frac{1}{2}$ ,  $\frac{5}{8}$  and  $\frac{3}{4}$ -inch, packed 1 dozen in box. 1-inch size,  $\frac{1}{2}$  dozen in box.

## GAUGE GLASS CUTTERS

CHESTERTON

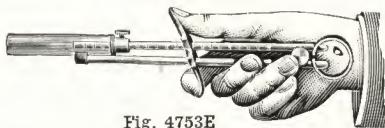


Fig. 4753E

BOSTON



Fig. 4753F

Price, Chesterton.....each	2.00
" Boston....."	1.50

## EXTRA BRASS GUARDS FOR WATER GAUGES

Length.....inches	12	14	16	18	20	22	24	30
Price.....each	.09	.10	.12	.15	.16	.17	.18	.21

All guards  $\frac{3}{16}$  inch in diameter.

**STEAM WHISTLES**

PLAIN



Fig. 800A

WHISTLE VALVE



Fig. 800B

WITH VALVE



Fig. 800C

**PLAIN WHISTLES—WITHOUT VALVE**

Diameter of Bell.....inches	1	1¼	1½	2	2½	3	3½
Length of Bell.....inches	2½	3	3¼	4	4½	5	5¾
Size of Pipe....."	¼	¼	⅜	½	½	¾	1
Price.....each	2.20	2.75	3.00	4.35	5.25	7.25	9.50
Diameter of Bell.....inches	4	5	6	8	10	12	....
Length of Bell.....inches	6½	8	9½	14	16	22	....
Size of Pipe....."	1¼	1½	2	2½	3	3	....
Price.....each	12.00	19.00	24.00	70.00	175.00	350.00	....

**WHISTLES WITH VALVE—ADJUSTABLE LEVER**

Diameter of Bell.....inches	1	1¼	1½	2	2½	3	3½
Length of Bell.....inches	2½	3	3¼	4	4½	5	5¾
Size of Pipe....."	¼	⅜	⅜	¾	¾	1	1
Price.....each	3.10	3.75	4.00	5.50	6.50	8.50	11.50
Diameter of Bell.....inches	4	5	6	8	10	12	....
Length of Bell.....inches	6½	8	9½	14	16	22	....
Size of Pipe....."	1¼	1½	2	2½	3	3	....
Price.....each	15.00	22.50	33.00	95.00	225.00	425.00	....

Brass Whistles with longer bell than standard made to order.

**WHISTLE VALVES—BRASS**

Size.....inches	⅜	½	¾	1	1¼	1½	2	2½	3
Price.....each	2.00	2.50	3.00	3.50	5.00	6.00	9.00	18.00	27.00

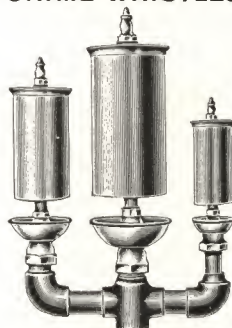
**CHIME WHISTLES**

Fig. 800D

Any number or size of Bells made to order. Prices on application.

## ALLEN GREASE AND OIL CUPS

### GREASE CUPS

"COLUMBIA"

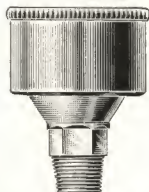


Fig. 6686A

"Columbia" Cups are with smooth finish and are used more particularly on machinery which is in plain sight where some attention must be paid to the appearance of the cups.

"Western" Cups are manufactured to fill the need for a heavy, cheap, serviceable, grease cup, being used on agricultural machinery, etc.

The large corrugations on cover make it very easy to screw on or off.

"WESTERN"



Fig. 6686B

Number .....	00	0	1	2	3	4
Capacity.....ounces	$\frac{1}{2}$	$\frac{2}{3}$	1	2	$3\frac{1}{2}$	5
Inside Diameter.....inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Size of Thread....."	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$1\frac{1}{2}$
Height, Over All....."	$1\frac{1}{2}$	$1\frac{5}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$
Price, "Columbia", Finished.....each	.70	.90	1.15	1.50	2.15	2.90
"    Nickel-plated....."	.82	1.06	1.36	1.80	2.60	3.40
"    "Western", Grey Iron....."	.25	.35	.45	.55	.80	1.05

"AJAX" GREASE CUP

PLAIN BRASS OIL CUP

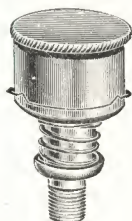


Fig. 6686C

"AJAX" GREASE CUPS

This cup with spring and ratchet is designed to fill the demand in places where the vibration is excessive, and where there is danger of the top shaking loose or off. The action is positive. Made rough and finished.



Fig. 6686D

Number.....	000	00	0	1	2	3
Capacity.....ounces	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{2}{3}$	1	2	$3\frac{1}{2}$
Inside Diameter.....inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Size of Thread....."	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Rough Brass.....each	.90	1.10	1.35	1.70	2.30	3.10
"    Finished Brass....."	1.05	1.25	1.50	1.90	2.50	3.40
"    "    Nickel-plated....."	1.20	1.40	1.70	2.15	2.80	4.00

PLAIN BRASS OIL CUPS

Made in Red Metal only, and finished in a first-class manner. With or without tube.

Diameter.....inches	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3
Size of Thread.....inches	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, Plain.....each	.25	.30	.35	.40	.60	.90	1.25	1.60	1.75	2.25	2.75	4.00
Add for Brass Tubes....."	.10	.10	.10	.10	.15	.15	.15	.15	.15	.20	.20	.20



## LUBRICATORS AND OIL PUMPS

## WOOD WHEEL LUBRICATORS

PLAIN

WITH AIR COCK AND TUBE

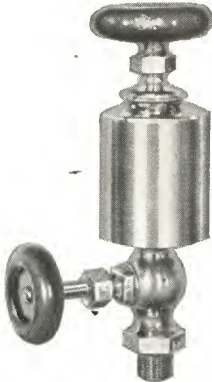


Fig. 1327A

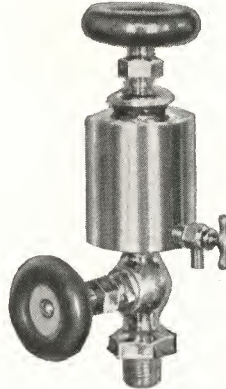


Fig. 1327B

The lubricator with air cock and tube is so constructed that the flow of oil is regulated by condensation (it feeds as it condenses), a very important feature.

Diameter of Body..... inches	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2
Shank, Iron Pipe Thread..... inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Plain..... each	2.00	2.20	2.40	2.60	2.90
With Air Cock and Tube..... "	....	3.20	3.40	3.60	3.90

Diameter of Body..... inches	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Shank, Iron Pipe Thread..... inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Plain..... each	3.25	3.75	4.75	7.00	10.00
With Air Cock and Tube..... "	4.25	4.75	5.75	8.00	11.00

## FELTHOUSEN BRASS BODY OIL PUMPS

ANGLE

Screw  
or Strainer Top  
 $\frac{3}{8}$ -inch  
Shank Thread

HORIZONTAL

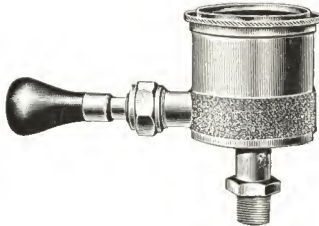


Fig. 1327C

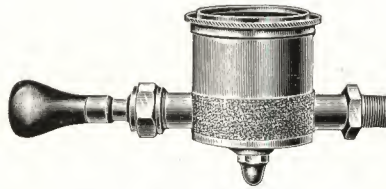


Fig. 1327D

Description .....	Angle			Horizontal			
Number.....	03	6	7	3	04	4	5
Capacity..... pints	$\frac{1}{4}$	$\frac{1}{2}$	1	$\frac{1}{4}$	$\frac{1}{2}$	1	3
Size of Body..... inches	2x2	2 $\frac{3}{4}$ x2 $\frac{3}{4}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$	2x2	2 $\frac{3}{4}$ x2 $\frac{3}{4}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$	7x4 $\frac{1}{2}$
Price, Finished..... each	3.50	5.00	7.50	3.50	5.00	7.50	12.00
" Nickel Plated... "	4.00	5.50	8.00	4.00	5.50	8.00	12.75

Nos. 1 and 2 fitted with tallow bowl, same capacity and dimensions as No. 3. Price No. 1 rough, brass finish, 3.50; nickel plated, 4.00; No. 2, brass finish, 5.00; nickel plated, 5.50.

## GLASS BODY SIGHT-FEED LUBRICATORS

FOR GAS, GASOLINE OR OIL ENGINES

"PARAGON"

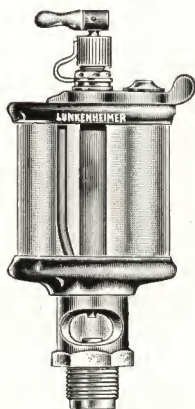


Fig. 169A

"MARS"

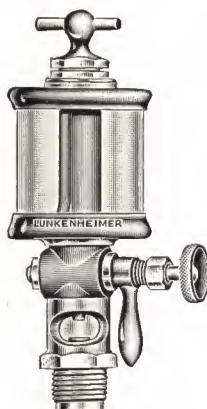


Fig. 169B

"EXPLOSO"



Fig. 169C

## "PARAGON"

Capacity.....ounces	1½	2½	4	5	10	18	32
Height of Glass.....inches	15⁄8	17⁄8	21⁄8	23⁄8	3	4	5
Diameter of Glass....."	13⁄4	2	21⁄4	21⁄2	3	3½	41⁄4
Size, Thread....."	1⁄4	3⁄8	3⁄8	3⁄8	1⁄2	1⁄2	3⁄4
Price, Finished Bronze.....each	2.00	2.80	3.50	4.00	5.40	7.00	14.00
" Nickel-plated....."	2.40	3.25	4.10	4.60	6.25	8.20	16.40
" extra Sight-Feed Glasses...per dozen	1.20	1.20	1.20	1.20	1.20	1.20	1.20

## "MARS"

Capacity.....ounces	21⁄2	4	5	10	18
Height of Glass.....inches	17⁄8	21⁄8	23⁄8	3	4
Diameter of Glass....."	2	21⁄4	21⁄2	3	3½
Size, Thread....."	3⁄8	3⁄8	1⁄2	1⁄2	3⁄4
Price, Bronze.....each	5.80	6.50	8.00	10.00	12.00
" Finished and Nickel-plated....."	6.80	7.75	9.50	12.00	14.00
" extra Sight-Feed Glasses.....per dozen	1.20	1.20	1.20	1.20	1.20

## "EXPLOSO"

Capacity.....ounces	1	1½	2½	4	5	10	18
Height of Glass.....inches	13⁄8	15⁄8	17⁄8	21⁄8	23⁄8	3	4
Diameter of Glass....."	1½	13⁄4	2	21⁄4	21⁄2	3	3½
Size, Thread....."	1⁄4	1⁄4	3⁄8	3⁄8	3⁄8	1⁄2	1⁄2
Price, Finished Brass.....each	4.50	4.75	5.00	5.50	6.50	9.00	11.50
" Nickel-plated....."	5.00	5.25	5.50	6.00	7.00	9.75	12.25
" extra Glasses....."	.10	.10	.12	.15	.25	.35	.65
" Leather Washers.....per dozen	.30	.36	.40	.45	.50	.60	.75

## DETROIT IMPROVED STANDARD SIGHT-FEED LUBRICATORS

### DOUBLE CONNECTION

EXTERIOR

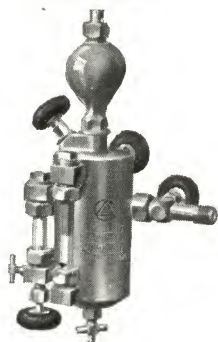


Fig. 5849A

SECTIONAL

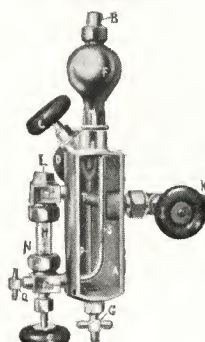


Fig. 5849B

The Detroit Improved Standard Double Connection Lubricator is a quality product throughout. In it are all the essentials of a perfect lubricator combined in a compact and well balanced design.

The support arm is in two parts. The part containing the globe valve is first screwed into the steam pipe and the lubricator is then coupled to it. This makes attachment easy and, on account of the globe valve, the lubricator can be removed at any time for any purpose without letting down steam. The heating passage from the upper sight-feed arm to the support arm passes directly through the body of the lubricator and, being always filled with steam, keeps the oil constantly warm and in a thoroughly liquid condition. This lubricator is well suited for feeding heavy oils.

Capacity.....pints	$\frac{1}{3}$	$\frac{1}{2}$	1	2	4	8
Size of Thread.....inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Sight-Feed Glass ... "	$\frac{5}{8} \times 2\frac{1}{16}$	$\frac{3}{4} \times 3$	$\frac{3}{4} \times 3$	$\frac{3}{4} \times 3\frac{1}{4}$	$\frac{3}{4} \times 3\frac{1}{4}$	$\frac{3}{4} \times 3\frac{1}{4}$
Gauge Glass..... "	$\frac{5}{8} \times 2\frac{1}{16}$	$\frac{5}{8} \times 3\frac{1}{4}$	$\frac{5}{8} \times 4\frac{3}{8}$	$\frac{5}{8} \times 4\frac{3}{8}$	$\frac{3}{4} \times 6$	$\frac{3}{4} \times 7\frac{1}{4}$
Price, Finished.....each	.....	.....	.....	.....	.....	.....
" Nickel-plated .. "	.....	.....	.....	.....	.....	.....

### SINGLE CONNECTION

The Detroit Improved Standard Single Connection occupies the same place among single connection lubricators that the double connection holds among double connection lubricators. It has replaced the Style C lubricator.

It is essentially the same as the double connection lubricator, except that it has an equalizing tube made necessary by the single connection.

The support arm is connected to the body at the center of gravity. On this account the connection holds the lubricator very firmly and vibration is reduced to a minimum.

Capacity.....pints	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{2}$	1	2
Size of Thread ... inches	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Price, Finished ....each	.....	.....	.....	.....	.....
" Nickel-plated .. "	.....	.....	.....	.....	.....

Size of glass, sight-feed, for  $\frac{1}{4}$ ,  $\frac{1}{3}$  and  $\frac{1}{2}$  pint,  $\frac{3}{4} \times 2\frac{1}{8}$  inches; pint and quart sizes same as double connection lubricators.

Prices on application.



Fig. 5849C



## PENBERTHY AUTOMATIC INJECTORS

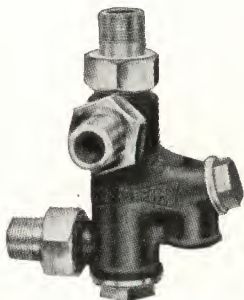


Fig. 7280A

A perfect restarting automatic machine; meaning, if the current of water is broken by any cause, the injector will pick up the water and re-establish the current to the boiler without the least attention. Every machine is carefully tested, and will work on the following points: Start low, 20 to 22 lbs. steam on 3-foot lift. Work high, 165 to 170 lbs. steam on 3-foot lift. Lift water, 20 to 24 feet on 60 to 80 lbs. steam. Will deliver water to boiler at 160 to 212 degrees, according to temperature of feed water and steam pressure. Water 200 to 212 degrees can always be delivered at nearly all pressures over 50 lbs. by throttling suction valve and delivering minimum capacity. It is advisable in many cases to install an injector large enough so that the supply can be cut down and attain this result, thereby saving fuel. By placing a short piece of pipe having a stopcock, in the overflow, and closing after the injector has started, water 8 to 10 degrees hotter can be handled, but the injector is rendered non-automatic while the stopcock is closed.

Size	Price Each	H. P. Based on Ordinary Tubular Boiler	H. P. Based on 30 Lbs. Water per H. P. per Hour	Pipe Connections Inches	GALLONS PER HOUR	
					1 to 3-FT. LIFT, 60 to 110 LBS. STEAM PRESSURE	
					Max.	Min.
O	15.00	3 to 6	4 to 8	1/4	60	35
OO	16.00	4 " 8	6 " 12	3/8	80	45
A	18.00	8 " 16	10 " 20	1/2	135	70
AA	20.00	12 " 22	15 " 30	1/2	180	100
B	25.00	17 " 32	22 " 45	3/4	260	140
BB	30.00	20 " 45	25 " 60	3/4	360	180
C	40.00	40 " 65	45 " 80	1	475	250
CC	45.00	45 " 80	50 " 100	1	600	325
D	55.00	50 " 100	60 " 135	1 1/4	800	425
DD	60.00	75 " 135	85 " 165	1 1/4	1000	525
E	75.00	100 " 180	125 " 235	1 1/2	1400	740
EE	90.00	115 " 255	150 " 320	1 1/2	1900	850
F	110.00	160 " 320	200 " 400	2	2400	1275
FF	125.00	200 " 400	250 " 500	2	3000	1600
G	150.00	300 " 500	325 " 600	2 1/2	3600	1875
GG	200.00	375 " 600	400 " 750	2 1/2	4200	2150

### REPAIR PARTS

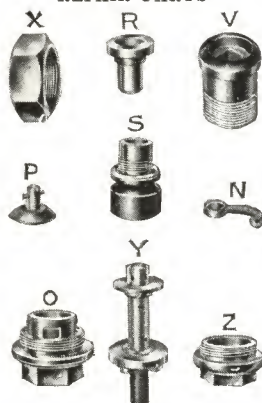


Fig. 7280B

### REPAIR PARTS

Size of Injector....	O	A	B	C	D	E	EE	F	FF	G
	OO	AA	BB	CC	DD					GG
R—Steam Jet...each	.25	.35	.45	.55	.65	.75	.75	.85	1.00	2.00
S—Suction Jet.. "	.25	.35	.45	.55	.65	.75	.75	.85	1.00	3.00
Y—Delivery Jet. "	1.25	1.50	2.00	2.50	3.00	3.75	4.50	5.50	6.50	9.00
X—Coupling Nut "	.25	.30	.40	.50	.60	1.25	1.25	1.50	1.50	2.00
V—Tail Pipe.... "	.25	.30	.40	.50	.60	.80	.80	1.00	1.00	1.25
Z—Overflow Cap "	.30	.40	.50	.60	.70	.80	.80	.90	.90	1.50
P— " Valve "	.40	.50	.60	.75	.90	1.00	1.10	1.25	1.25	1.75
N— " Hinge "	.10	.10	.15	.15	.15	.20	.20	.20	.20	.30
O—Plug..... "	.60	.80	1.00	1.25	1.50	1.75	1.75	2.00	2.00	4.00
Strainer..... "	.40	.45	.50	.55	.60	.75	.75	1.00	1.00	1.50

Extra parts furnished for injectors numbered above 21000 without returning it to factory. In ordering parts do not fail to give serial letter and number, which will be found on top of overflow. In referring to or ordering parts, designate them by letter or name as per above.

# PACKINGS

CLOTH INSERTION

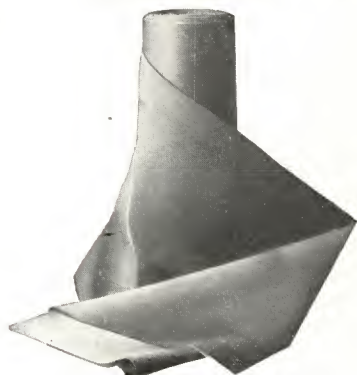


Fig. 4182A

RAINBOW



Fig. 4182B

CLOTH INSERTION SHEET PACKING. Cloth one or both sides. Made in rolls 36 inches wide,  $\frac{1}{64}$ ,  $\frac{1}{32}$ ,  $\frac{1}{16}$ ,  $\frac{3}{32}$ ,  $\frac{1}{8}$ ,  $\frac{3}{16}$  and  $\frac{1}{4}$  inch thick. Price, per pound, .60.

RAINBOW PACKING. Especially adapted for very high pressure. Will not harden or blow out. Not affected by oils, ammonia, liquors, steam, heat or alkalis. In rolls of about 200 lbs. each. Standard width, 36 inches;  $\frac{1}{32}$ ,  $\frac{1}{16}$ ,  $\frac{3}{32}$ ,  $\frac{1}{8}$ ,  $\frac{3}{16}$  and  $\frac{1}{4}$  inch thick. Price, per lb., 1.00.

JUTE PACKING



Fig. 4182C

OAKUM

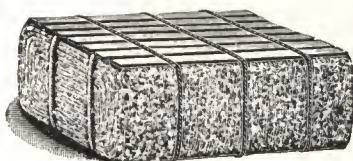


Fig. 4182D

WASTE



Fig. 4182E

Price, Jute Packing, in 100-pound Coils.....	per pound	.10
" Plumbers' Oakum, in 50-pound Bales .....	per bale	2.50
" " Rope Oakum, in 100 pound Coils.....	per pound	.10

## COTTON WASTE

Grade.....	No. 1 White	No. 2 White	No. 1 Col.	No. 2 Col.	No. 3 Col.
Price, 100 lb. Bales, per lb.	.20	.18	.12	.10	.08

ASBESTOS ROPE

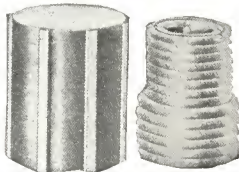


Fig. 4182F

ASBESTOS WICK



Fig. 4182G

CANDLE WICK



Fig. 4182H

Price, Asbestos Rope, Braided or Standard Twist, Reels of 10, 15, 25 and 50 lbs., per lb.	.50
" " Wick, Standard Grade, $\frac{1}{4}$ , $\frac{1}{2}$ and 1-lb. Balls, 5 and 10-lb. Spools "	.50
" Candle " $\frac{1}{8}$ and $\frac{1}{4}$ -pound Balls.....	.30



## HOSE

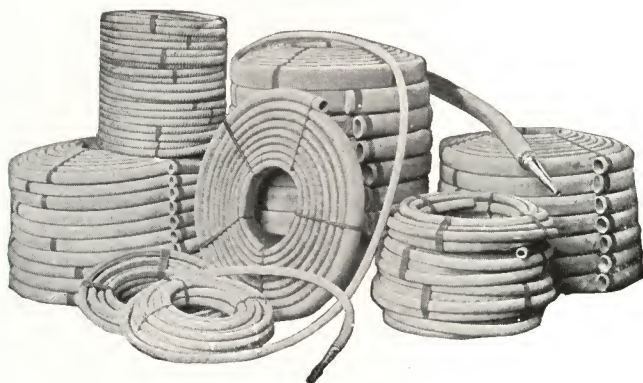


Fig. 4331A

## WATER CONDUCTING HOSE

Two-ply hose, designed to conduct water under moderate pressure only. Sizes above 3-inch are mainly for tank hose; 3-ply hose, of medium strength, suitable for hydrants, garden and pump uses, street sprinkling, washing decks, etc.

Four-ply hose, recommended for all purposes where a particularly strong and reliable article is required.

Five and 6-ply hose, for use where great resistance to pressure or very severe service is required.

Internal Diameter.....inches	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4
Price, 2-ply .....per foot	.20	.25	.33	.42	.50	.58	.66	.75	.83	.92
“ 3 “ .....	.25	.30	.40	.50	.60	.70	.80	.90	1.00	1.10
“ 4 “ .....	.30	.37	.50	.62	.75	.87	1.00	1.12	1.25	1.37
“ 5 “ .....	.37	.46	.62	.77	.93	1.08	1.25	1.40	1.56	1.71
“ 6 “ .....	.45	.55	.75	.93	1.12	1.30	1.50	1.68	1.87	2.05

Internal Diameter.....inches	3	3 1/2	4	5	6	7	8	9	10	....
Price, 2-ply .....per foot	.99	1.16	1.32	1.65	1.98	2.31	2.64	2.97	3.33	....
“ 3 “ .....	1.20	1.40	1.60	2.00	2.40	2.80	3.20	3.60	4.00	....
“ 4 “ .....	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	....
“ 5 “ .....	1.87	2.18	2.50	3.13	3.75	4.38	5.00	5.63	6.25	....
“ 6 “ .....	2.25	2.62	3.00	3.75	4.50	5.25	6.00	6.75	7.50	....

All intermediate sizes charged at the list price of the next larger size, thus: 1 1/8-inch is charged at 1 1/4-inch price, etc. Furnished regularly in 25 and 50-foot lengths.

## STEAM HOSE

Adopted at Meeting of Mechanical Rubber Goods Manufacturers' Association,  
April 26, 1910, to Take Effect May 2, 1910

Internal Diameter.....inches	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
Price, 3-ply.....per foot	.47	.57	.70	.85	1.02	1.18	1.34	1.50	1.66
“ 4 “ .....	.56	.71	.87	1.04	1.25	1.45	1.66	1.87	2.08
“ 5 “ .....	.70	.87	1.07	1.30	1.56	1.81	2.07	2.33	2.60
“ 6 “ .....	.84	1.05	1.28	1.56	1.87	2.17	2.49	2.80	3.12
“ 7 “ .....	.98	1.23	1.50	1.82	2.18	2.53	2.90	3.27	3.64
“ 8 “ .....	1.12	1.41	1.70	2.08	2.50	2.90	3.32	3.74	4.16

When ordering, state steam pressure used.

NOTE.—The list on steam hose applies to brewer's, air brake, car heating and air drill hose also.



## HOSE

## COTTON RUBBER-LINED MILL HOSE

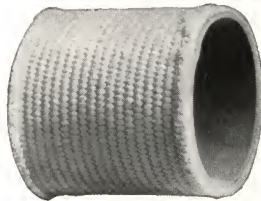


Fig. 8016A

Our mill hose is of medium weight, single body and for fire protection.

It is mildew-proof and thoroughly reliable and will stand a water pressure of 300 pounds.

Size .....	inches	1	1¼	1½	2	2½
Price.....	per foot	.40	.45	.50	.65	.80

## JACKETED FIRE HOSE

WOVEN JACKET



Fig. 8016B

WOVEN SINGLE

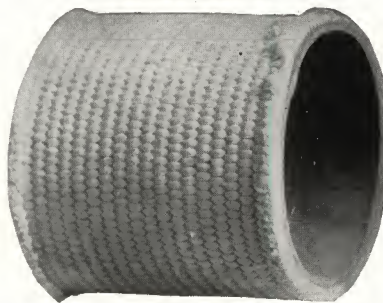


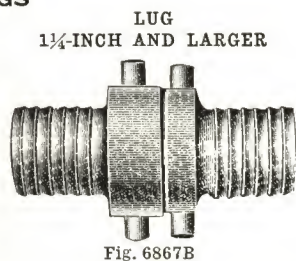
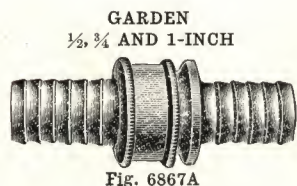
Fig. 8016C

The vital feature of cotton rubber-lined fire hose is the rubber tube. Our varied experience with this class of goods has taught us that the most satisfactory tube is one built up of three layers of rubber vulcanized together. By this method any imperfection in one layer is covered with the other layers, consequently pinholes cannot develop.

Prices on application.

## HOSE FITTINGS

## HOSE COUPLINGS



Size .....	inches	½	¾	1	1¼	1½	2	2½
Price, Hose Thread.....	per dozen	2.40	2.40	4.40	10.00	14.00	24.00	48.00
" Pipe " .....	"	2.65	2.65	4.65	10.50	15.00	26.00	50.00

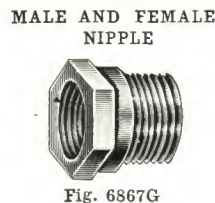
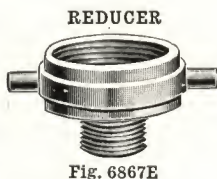
  

Size .....	inches	3	3½	4	5	6	8	.....
Price, Hose Thread.....	per dozen	75.00	.....	.....	.....	.....	.....	.....
" Pipe " .....	"	76.00	120.00	150.00	250.00	500.00	600.00	.....

## STEAM HOSE COUPLINGS



Size .....	inches	½	¾	1	1¼	1½	2	2½
Price, Iron Pipe Thread ....	per dozen	15.00	15.00	18.00	24.00	30.00	42.00	72.00
" Female Half Iron Pipe Thread. .	"	10.00	10.00	12.00	16.00	20.00	28.00	48.00



## HOSE BUSHINGS AND REDUCERS

Size, inches	1x½	1x¾	1¼x¾	1¼x1	1½x¾	1½x1	1½x1¼	2x¾	2x1
Price, per doz.	5.50	6.50	8.00	10.00	11.50	11.50	12.00	13.00	14.00

Size, inches	2x1¼	2x1½	2½x¾	2½x1	2½x1¼	2½x1½	2½x2	3x2	3x2½
Price, per doz.	16.00	18.00	20.00	22.00	23.00	24.00	26.00	30.00	36.00

## MALE OR MALE AND FEMALE HOSE NIPPLES

Size.....inches	½	¾	1	1¼	1½	2	2½	3	3½	4
Price....per dozen	3.50	3.50	5.00	9.00	10.00	14.00	28.00	40.00	50.00	75.00

In ordering any of the above goods, specify whether hose or iron pipe thread is required.

## SHERMAN HOSE CLAMPS

REGULAR  
HOSE CLAMP



Fig. 8914A

DOUBLE BOLT  
SUCTION CLAMP



Fig. 8914B

SHEET STEEL  
SUCTION CLAMP

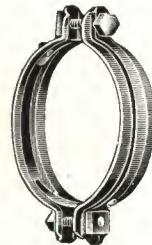


Fig. 8914C

The many brands of hose, with their walls varying in thickness, and the different plies, render it necessary to select the proper size of clamp. For example: A  $\frac{3}{4}$ -inch 3-ply clamp will not draw up enough on a  $\frac{3}{4}$ -inch 2-ply rubber hose, or on a cotton hose. It costs no more to buy an assortment rather than a quantity of the size most used.

### LAWN AND WATER HOSE CLAMPS

Size, Hose..inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1
Hose.....ply	3	2	3	2	3	4	2	3	4	2
Price... per dozen	.60	.60	.60	.60	.60	.60	.60	.60	.60	2.00
Size, Hose..inches	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3
Hose.....ply	3	4	3	4	3	4	3-4	3-4	3-4	3-4
Price... per dozen	2.00	2.00	2.50	2.50	3.00	3.00	4.00	6.50	7.00	10.00

### STEAM HOSE CLAMPS

Size.....inches	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$
Hose.....ply	3	4	3	4	3	4
Inside Diameter, Clamp Open.....inches	$1\frac{1}{16}$	$1\frac{11}{32}$	$1\frac{5}{8}$	$1\frac{13}{32}$	$1\frac{15}{16}$	$1\frac{31}{32}$
Price.....per dozen	2.00	2.00	2.50	2.50	3.00	3.00
Size.....inches	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Hose.....ply	3-4	5	3-4	5	3-4	5
Inside Diameter, Clamp Open.....inches	$2\frac{7}{32}$	$2\frac{13}{32}$	$2\frac{11}{16}$	$2\frac{7}{8}$	$3\frac{1}{4}$	$3\frac{9}{16}$
Price.....per dozen	3.50	4.00	5.50	6.50	8.50	9.50

### DOUBLE BOLT CLAMPS

Made from extra heavy gauge sheet brass, in two pieces, with extra long tongues. Bolts have hexagon heads to use with ordinary wrench.

*Size.....inches	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$	6	$6\frac{1}{4}$	$6\frac{1}{2}$	$6\frac{3}{4}$	7
Price... per dozen	11.25	13.75	15.25	16.75	18.25	19.75	21.25	22.75	24.25	26.00	28.00	30.00	32.00
*Size.....inches	$7\frac{1}{4}$	$7\frac{1}{2}$	$7\frac{3}{4}$	8	$8\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	9	$9\frac{1}{4}$	$9\frac{1}{2}$	$9\frac{3}{4}$	10	....
Price... per dozen	34.00	36.00	38.00	40.00	42.00	44.00	46.00	48.00	50.00	52.00	54.00	56.00	....

\*Measurement of inside diameter.

### SHEET STEEL SUCTION CLAMPS

Galvanized. Made in one size only, for 2-inch Agricultural Suction Hose, adjustable to fit hose with straight or enlarged ends. Prices on application.



## FIRE DEPARTMENT SUPPLIES

## HOSE PIPES

WITH SCREW TIP



Fig. 8227A

WITH STOPCOCK



Fig. 8227B

## WITH SCREW TIP

Size.....inches	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Length.....inches	6	$7\frac{1}{2}$	12	$8\frac{1}{2}$	$12\frac{1}{2}$	12	15	12	13
Discharge....."	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Price, Hose Thread, per dozen	7.00	8.00	10.00	10.00	12.00	20.00	24.00	24.00	25.00
" Pipe " "	8.00	9.20	11.20	11.20	13.20	21.20	25.00	25.00	27.50

Size.....inches	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Length.....inches	15	19	12	15	20	15	20	24	30
Discharge....."	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	1	1	1
Price, Hose Thread, per dozen	30.00	40.00	38.00	45.00	50.00	75.00	96.00	100.00	144.00
" Pipe " "	32.50	42.50	41.00	48.00	53.00	78.50	99.50	103.50	150.00

## WITH STOPCOCK

Size.....inches	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Length.....inches	6	8	12	8	12	12	15	12	15
Discharge....."	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{5}{8}$
Price, Hose Thread, per dozen	11.00	13.00	18.00	15.00	20.00	40.00	50.00	55.00	65.00
" Pipe " "	12.20	14.20	19.20	18.00	23.00	43.00	59.00	60.00	74.00

Size.....inches	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Length.....inches	12	20	25	12	15	20	24	30	36
Discharge....."	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	..	..
Price, Hose Thread, per dozen	80.00	110.00	130.00	145.00	155.00	160.00	175.00	195.00	215.00
" Pipe " "	83.00	113.00	133.00	153.00	163.00	170.00	185.00	205.00	225.00

## STANDPIPE SIAMESE

No. 26

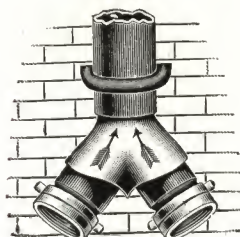


Fig. 8227C

No. 31

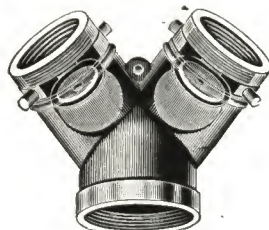


Fig. 8227D

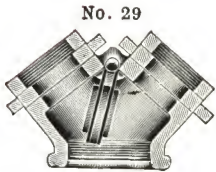
No. 26 has a valve so that one or both streams can be used. Made with  $2\frac{1}{2}$  or 3-inch inlets and  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$  and 4-inch outlet at the top. Also made with  $2\frac{1}{2}$ -inch inlet and 5-inch outlet at the top. Prices on application.

No. 31 is designed for what is called the wet system for fire protection in a building where the water remains continually in the standpipe, and is provided with two valves which act independently of each other. May be used either with wet or dry system. Made in all popular sizes. Prices on application.

For other forms of standpipe Siamese, see following page.

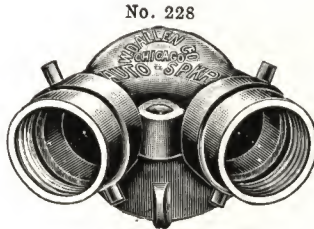
## FIRE DEPARTMENT SUPPLIES

### STANDPIPE SIAMESE



No. 29

Fig. 8174A



No. 228

Fig. 8174B



No. 33

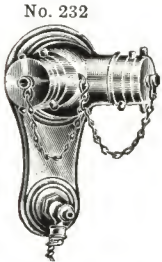
Fig. 8174C

No. 29 is a short straight Siamese with one clapper, as shown. It is intended to be used in connection with inside standpipe or automatic systems, where the standpipe emerges at right angles to the wall. Made in all popular sizes, either rough brass or finished, as ordered. Prices on application.

No. 228 is a 90-degree Siamese Connection, made to economize space, and is popular in Denver, Chicago and New York. This style has one valve only and is used largely on pipes projecting through the sidewalk. Patterns at factory for various sizes of inlets and outlets. Prices on application.

No. 33 Morse Cap shown on the Siamese, is the best device yet invented for the protection of the inlets of Siamese Connections when used on a fire escape. It will fit over the swivels of any Siamese. Also made in special form for Fehy Connections, if desired. Prices on application.

### No. 232



No. 232

Fig. 8174D

As shown, No. 232 is a combination Siamese and sill cock, used where the inlet pipe is run through the side of the building.

This can be furnished with either single or double clapper closing valves.

It is made with a 4-inch outlet and with either 2½ or 3-inch inlets.

A supplementary plate fitting directly over the escutcheon, reading "Standpipe Connection" or "Sprinkler Connection," can be furnished when demanded by the underwriters. Prices on application.

### ESCUTCHEONS FOR SIAMESE CONNECTIONS

We can furnish cast iron plates, or if needed, cast brass plates lettered "Steamer Connections," which are fastened to the wall where the Siamese Connections are used. These are provided with different sizes of holes corresponding to the size of the iron pipe used at the upper end of the Siamese. Prices and full information on application.





## LAWN SPRINKLERS

"PLUVIUS"



Fig. 8194A

"PRESTON"



Fig. 8194B

"BUSY"



Fig. 8194C

The "Pluvius" is ball bearing, revolving with the slightest pressure, and covers a large or small circle, according to the water pressure. It has a movable brass swivel at the base for making connection with the hose.

The "Preston" is a reliable, satisfactory sprinkler, becoming very popular.

The "Busy" low base sprinkler which, under 35 pounds pressure, will cover a circle 30 feet in diameter, is a cheap sprinkler, quite efficient and popular.

Price, "Pluvius,"	Height, 11 inches,	Three Brass Arms.	per dozen	17.00
" " "Preston,"	" 8 "	" " " " " " " " " " " "	"	17.00
" " "Busy,"	" 5½ "	Galvanized Top, Enameled Iron Base	"	9.60

"EVANSTON"

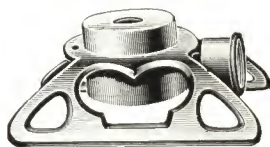


Fig. 8194D

"LITTLE WONDER"



Fig. 8194E

C. B. G.



Fig. 8194F

RING



Fig. 8194G

The "Evanston" Sprinkler is built on the well-known principle of the tangential spray. Has no revolving parts to wear out.

"Little Wonder" Sprinklers have won a name for themselves in a remarkably short time. One of the most popular sprinklers on the market.

C. B. G. (cheap but good) is a low priced sprinkler, made on the general order of the "Evanston," but somewhat smaller and with a less expensive finish.

The Ring Sprinkler is the best of its class. The perforations in the top are arranged to distribute water in the most thorough and effective manner.

Price, "Evanston,"	Height, 2¼ inches,	Japanned	per dozen	4.80
" " "Little Wonder,"	Height, 2 inches,	Japanned	"	2.40
" " C. B. G.,	Height, 1½ inches,	Japanned	"	3.20
" " Ring,	Stamped Sheet Brass, 8 inches in Diameter		"	8.50

## BOWES' HOSE RACKS

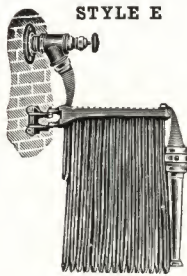


Fig. 3679A

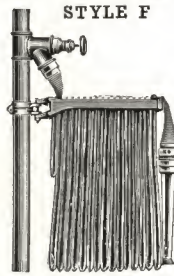


Fig. 3679B

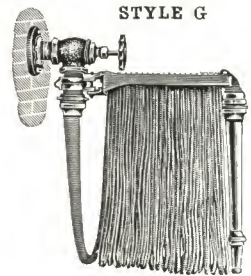


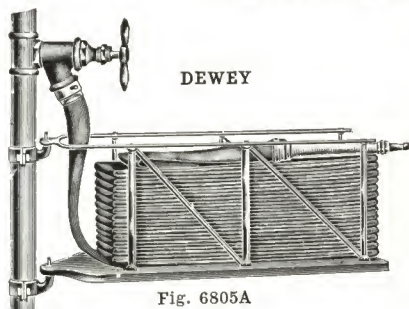
Fig. 3679C

The style shown above of Bowes' hose racks have a shield on each side to hide the pins and supporting arms. They represent a most practical and reliable pin rack, their distinctive advantage being that the pins or supporting rings do not fall to the floor when the hose is pulled from the rack as in the case of similar racks.

No.	Style	Kind of Material	Capacity Unlined Linen Hose Feet	Size Hose Inches	PRICE EACH	
					Finished	Nickel Plated
31	E	Iron	50	1½	5.00	7.00
32	"	"	50	2	5.00	7.00
33	"	"	50	2½	5.00	7.00
34	"	"	100	1½	6.00	8.00
35	"	"	100	2	6.00	8.00
36	"	"	100	2½	6.00	8.00
131	"	Brass	50	1½	10.00	11.00
132	"	"	50	2	10.00	11.00
133	"	"	50	2½	10.00	11.00
134	"	"	100	1½	12.00	13.00
135	"	"	100	2	12.00	13.00
136	"	"	100	2½	12.00	13.00
41	F	Iron	50	1½	5.00	7.00
42	"	"	50	2	5.00	7.00
43	"	"	50	2½	5.00	7.00
44	"	"	100	1½	6.00	8.00
45	"	"	100	2	6.00	8.00
46	"	"	100	2½	6.00	8.00
141	"	Brass	50	1½	10.00	11.00
142	"	"	50	2	10.00	11.00
143	"	"	50	2½	10.00	11.00
144	"	"	100	1½	12.00	13.00
145	"	"	100	2	12.00	13.00
146	"	"	100	2½	12.00	13.00
51	G	Iron	50	1½	5.00	7.00
52	"	"	50	2	5.00	7.00
53	"	"	50	2½	5.00	7.00
54	"	"	100	1½	6.00	8.00
55	"	"	100	2	6.00	8.00
56	"	"	100	2½	6.00	8.00
151	"	Brass	50	1½	10.00	11.00
152	"	"	50	2	10.00	11.00
153	"	"	50	2½	10.00	11.00
154	"	"	100	1½	12.00	13.00
155	"	"	100	2	12.00	13.00
156	"	"	100	2½	12.00	13.00

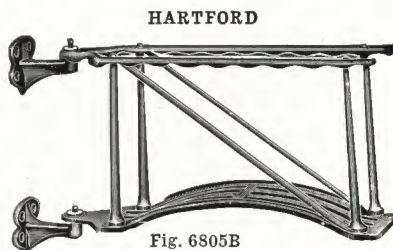
In ordering state size of pipe to which rack is to be attached. All Bowes' racks are packed in individual wooden boxes.

## SWINGING HOSE RACKS



DEWEY

Fig. 6805A



HARTFORD

Fig. 6805B

The Dewey Rack is especially recommended for warehouses and manufacturing plants. The hose is folded flat and as the rack is usually suspended about six feet from the floor the hose is protected from damage and yet is instantly available in case of emergency. It is approved by the Associated Factory Mutual Insurance Companies.

The Hartford Rack is similar to the Dewey Rack, but it is made with an arched bedplate. The advantage of this is that the hose lies better on a rack with an arched bottom, as the arch supports the weight of the hose and relieves the folded ends of any pressure. The top of the hose so folded will be level and not concave.

The underwriters approve a hose rack with an arched bedplate, and the Hartford Rack is largely specified by architects and owners on account of the advantages above mentioned.

Dewey Racks Number	Hartford Racks Number	Size Hose Inches	Capacity Feet	Kind of Hose	Price Each
7	17	1 or 1 1/4	50	Unlined Linen	5.00
8	18	1 1/2	50	" "	5.00
9	19	2	50	" "	5.00
10	20	2 1/2	50	" "	5.00
7A	17A	1 or 1 1/4	75	" "	5.50
8A	18A	1 1/2	75	" "	5.50
9A	19A	2	75	" "	5.50
10A	20A	2 1/2	75	" "	5.50
10B	21A	1 or 1 1/4	100	" "	6.00
11	21	1 1/2 or 2	100	" "	6.00
12	22	2 1/2	100	" "	6.00
13	23	1 1/2 or 2	150	" "	7.00
14	24	2 1/2	150	" "	7.00
13	23	1 1/2 or 2	50	Rubber Lined Cotton Mill	7.00
14	24	2 1/2	50	" " " "	7.00
15	25	1 1/2 or 2	100	" " " "	7.50
16	26	2 1/2	100	" " " "	8.00

Both the Dewey and the Hartford Racks are packed "knocked down" in individual wooden boxes for convenience. Stock finish is red enamel, baked on. Nos. 15, 16, 25 and 26 will carry heavy rubber lined cotton hose in 50-foot lengths.

Both the Dewey and the Hartford Racks are furnished with pipe clamps or wall brackets. In ordering, state which attachment is desired and, if pipe clamps, give the size of the standpipe.



## SECTIONAL PIPE COVERINGS

### ASBESTOS MAGNESIA

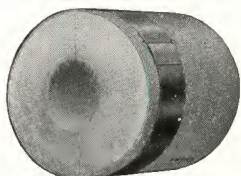


Fig. 4946A

fibre. Sections 3 feet long, 1 inch thick, with a canvas jacket and lacquered metal bands.

### ASBESTOS MAGNESIA MOLDED

For medium and low pressure steam pipes. Sections 3 feet long, 1 inch thick with a heavy canvas jacket and lacquered metal bands. Fittings, ells, tees, etc., to match this covering are carried in stock in all sizes from  $\frac{1}{2}$  to 10 inches.

### 85 PER CENT MAGNESIA

For high pressure steam pipes. Composed of 85 per cent pure carbonate magnesia combined with asbestos

### ASBESTOS AIR CELL

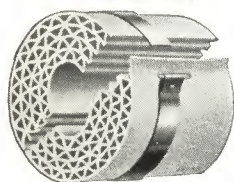


Fig. 4946B

### ASBESTOS AIR CELL

Sections 3 feet long,  $\frac{1}{2}$ ,  $\frac{3}{4}$  and 1 inch thick, with a heavy canvas jacket and lacquered metal bands. Special thicknesses can be made to order.

### ALASKA FROST-PROOF

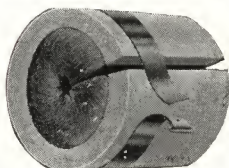


Fig. 4946C

### ALASKA FROST-PROOF

It has a total thickness of 1 inch, composed as follows:  $\frac{1}{2}$  inch of genuine hair felt on the inside and  $\frac{1}{2}$  inch of soft corrugated wool felt on the outside. Finished with a heavy canvas jacket and lacquered metal bands. Sections 3 feet long.

### WOOL FELT

Diamond "A," for low pressure steam and hot water pipes. Composed of a soft, corrugated wool felt, with an interlining of two layers of asbestos felt and with a heavy canvas jacket and lacquered metal bands.

Diamond "B," for low pressure steam and hot water pipes.

### FROST PROTECTIVE

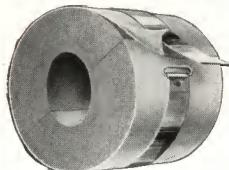


Fig. 4946E

Similar to Diamond "A," except that it is but  $\frac{3}{4}$  inch thick and has a single layer of asbestos felt on the inside.

Diamond "C," for hot water pipes. Same as Diamond "B," except that it is only  $\frac{1}{2}$  inch thick. All sections 3 feet long. Furnished at a slight extra cost with an oilcloth jacket for use outdoors and in damp places.

### WOOL FELT

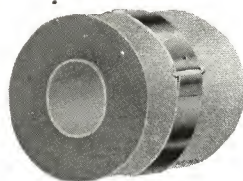


Fig. 4946D

### FROST PROTECTIVE

This is the most effective low priced covering for the prevention of freezing in gas and water pipes. Made of soft, corrugated wool felt, 1 inch thick, with a heavy canvas jacket and lacquered metal bands.

Inside Diameter of Pipe.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Price, Covering.....per foot	.22	.24	.27	.30	.33	.36	.40	.45	.50
" Elbow Covers.....each	.30	.30	.30	.30	.30	.36	.42	.48	.54
" Tee "....."	.36	.36	.36	.36	.36	.42	.48	.54	.60
" Cross "....."	.48	.48	.48	.48	.48	.54	.60	.70	.80
" Globe Valve Covers...."	.54	.54	.54	.54	.54	.60	.78	.96	1.20
" Flange Covers....."	.50	.50	.50	.50	.50	.60	.70	.80	.90
Inside Diameter of Pipe.....inches	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Price, Covering.....per foot	.60	.65	.70	.80	1.00	1.10	1.20	1.30	1.85
" Elbow Covers.....each	.60	.72	.90	1.30	1.80	2.40	3.00	3.60	....
" Tee "....."	.75	.90	1.20	1.60	2.20	3.00	3.80	4.60	....
" Cross "....."	.95	1.10	1.50	2.00	2.80	3.60	4.40	5.20	....
" Globe Valve Covers...."	1.50	1.85	2.25	2.80	3.60	4.40	5.30	6.20	....
" Flange Covers....."	1.00	1.30	1.60	1.90	2.20	2.50	2.90	3.30	....

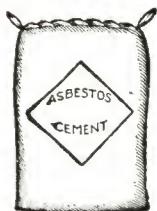
**ASBESTOS CEMENT, ETC.****ASBESTOS  
CEMENT**

Fig. 7618A

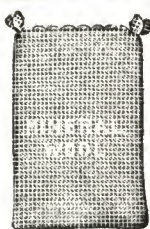
**MINERAL WOOL**

Fig. 7618B

**HAIR FELT**

Fig. 7618C

**ASBESTOS BLOCK COVERING**  
4 x 18 INCHES

Fig. 7618D

**MAGNESIA BLOCK COVERING**

Fig. 7618E

**ASBESTOS CEMENT**

Price, Asbestos Cement, in 100-pound Bags.....	per bag	....
" 85° Magnesia, in 60-pound Bags.....	"	....

**MINERAL WOOL**

Price, in Sacks of about 60 pounds .....	per pound	....
" Sacks (extra).....	"	....

In bulk, prices on application. Weighs about 12 pounds per cubic foot.

**HAIR FELT—In Rolls of 300 Square Feet; Width, 6 Feet**

Thickness .....	inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price .....	per square foot	....	....	....	....	....	....	....	....

**BLOCK COVERINGS—Standard Width, 4 x 18 Inches**

Thickness .....	inches	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2
Price... per square foot		.27	.27	.30	.30	.34	.38	.42	.45	.49	.53	.57	.60
Thickness .....	inches	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4
Price... per square foot		.64	.68	.72	.75	.79	.83	.87	.90	.98	1.05	1.13	1.20

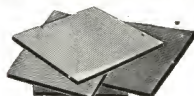
**HARD RED FIBRE SHEETS**

Fig. 7618F

**HARD FIBRE****RED, GREEN OR BLACK****ROLLED TUBING**

Fig. 7618G

**ROUND ROD**

Fig. 7618H

**SHEETS**

Price, $\frac{1}{4}$ and $\frac{1}{2}$ inch thick, in Full Sheets .....	per pound	....
" $\frac{1}{16}$ , $\frac{3}{32}$ , $\frac{1}{8}$ , $\frac{3}{16}$ and $\frac{1}{4}$ inch thick, Sheet cut in Thirds.....	"	....
" $\frac{3}{8}$ and $\frac{1}{2}$ " " " Halves.....	"	....

**TUBING AND RODS**

Price.....	per pound	....
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Fig. 7618J

**ASBESTOS MILLBOARD—Sheets 40 x 40 Inches**

Thickness ... inches	$\frac{1}{32}$	$\frac{3}{64}$	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{3}{32}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Weight....*pounds	2	3	4	6	8	12	14	23	27
Price.... per pound	....	....	....	....	....	....	....	....	....

\*Per sheet.

**ASBESTOS PAPER—In Flexible Rolls, 36 Inches Wide**

Price, $\frac{1}{32}$ , $\frac{1}{16}$ , $\frac{3}{32}$ and $\frac{1}{8}$ inch thick .....	per pound	....
--	-----------	------



## GRAPHITE, ETC.

## DIXON'S FLAKE GRAPHITE



Fig. 7293A

## DIXON'S GRAPHITE COMPOUND



Fig. 7293B

## SMOOTH-ON CEMENT



Fig. 7293C

## DIXON'S TICONDEROGA FLAKE LUBRICATING GRAPHITE

Description		Per Case	Per Package
Price, 1/2-pound Paper Cans, 36 in Case.....		6.75	.25
" 1 " " " 36 " " .....		10.00	.35
" 5 " " Tin Cans, Screw-Top, 10 in Case .....		13.50	1.50
" 10 " " " 5 " " .....		13.00	2.75
" 25 " " Paper Bags, Enclosed in Case.....			5.50
" 50 " " " " " .....			10.25
" 100 " " Kegs.....			19.50
" 200 " " " " " .....			37.00
" 400 " " Barrels.....			70.00

## DIXON'S GRAPHITE WIRE ROPE, CABLE AND CHAIN GREASE

Price, 5-lb. Packages, 10 in Case, each	.90	Price, 50-lb. Packages .....	each 6.50
" 10 " " 6 " " .....	1.50	" 100 " " .....	12.00
" 25 " " " " .....	3.50	" Barrels of about 400 lbs. per lb.	.10

## DIXON'S GRAPHITE PIPE JOINT COMPOUND

Packages .....	CANS				KEGS		BARRELS
Weight .....	1	5	10	25	50	100	600
Price .....	.20	.18	.15	.14	.13 1/2	.13	.12 1/2

## SMOOTH-ON CEMENTS

Nos. 1 and 2, blue label, engineers' powdered cements. No. 3, gray label, engineers' paste cement. No. 4, yellow label, foundry cement. No. 5, red label, plumbers' cement. No. 6, white label, bridge and ship work.

Price, Smooth-On Iron Cement, Nos. 1 and 2, in 1, 5, 10 and 25-lb. Tins. . per lb.	.50
" " " Elastic Cement, No. 3, in 1, 5 and 10-lb. Tins.....	.50
" " " Castings, No. 4, Grades A and B, in 1, 5, 10 and 25-lb. Tins ..	.50
" " " Joints, No. 5, in 1, 5, 10 and 25-lb. Tins.....	.50
" " " Rivet Iron Cement, No. 6, in 10-lb. Cans .....	.50

Discounts, quoted on all the above on any specified quantity.



Fig. 7293D

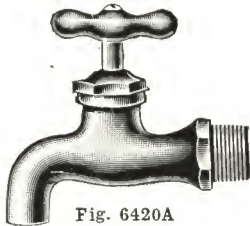
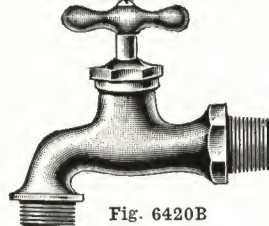
## WHITE LEAD, GROUND IN OIL

Price, Pure White Lead.....	per pound	....
Put up in 12 1/2, 25, 50 and 100-pound kegs, 1, 2 and 5-pound cans.		

## RED LEAD

Price, Dry Red Lead.....	per pound	....
" Ground in Oil .....	"	....
Put up in 12 1/2, 25, 50 and 100-pound kegs, 1, 2 and 5-pound cans.		

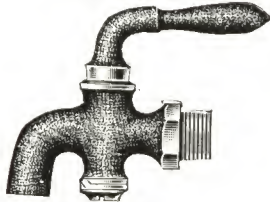
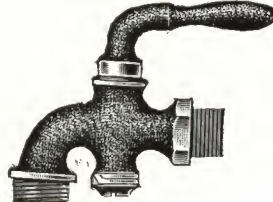


**COMPRESSION AND GROUND KEY BIBBS****COMPRESSION BIBBS****PLAIN BIBB****Fig. 6420A****FOR IRON PIPE****HOSE BIBB****Fig. 6420B****PLAIN BIBBS**

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough ..... per dozen	16.80	17.40	22.80	30.60	54.00	106.80	139.20	282.00
" Finished ..... "	18.60	19.80	25.20	33.00	60.00	114.00	150.00	300.00
" Nickel-plated.... "	22.20	23.40	28.80	37.20	66.00	124.80	165.00	330.00

**HOSE BIBBS**

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough ..... per dozen	19.80	20.40	25.80	33.60	61.20	117.60	154.20	304.20
" Finished ..... "	21.60	22.80	28.20	36.00	67.20	124.80	165.00	322.20
" Nickel-plated.... "	25.20	26.40	31.80	40.20	73.20	135.60	180.00	352.20

**LEVER HANDLE GROUND KEY BIBBS****PLAIN BIBB****FOR IRON PIPE****HOSE BIBB****Fig. 6420C****Fig. 6420D****PLAIN BIBBS**

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough ..... per dozen	20.40	21.00	29.40	36.00	52.80	89.40	149.40	258.00
" Finished..... "	25.20	25.80	35.40	45.00	64.80	107.40	179.40	300.00
" Nickel-plated ... "	30.00	30.60	41.40	54.00	76.80	125.40	209.40	342.00

**HOSE BIBBS**

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough ..... per dozen	23.40	24.00	32.40	39.00	60.00	100.20	164.40	280.20
" Finished..... "	28.20	28.80	38.40	48.00	72.00	118.20	194.40	322.20
" Nickel-plated.... "	33.00	33.60	44.40	57.00	84.00	136.20	224.40	364.20

**BIBB WASHERS****Fig. 6420E**

Size..... inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Price, Fiber ..... per hundred					.50
" Hard Rubber .....					1.00
" "Boss" .....					1.00
" Jenkins .....					2.00

# STOP AND STOP AND WASTE COCKS

## FLAT WAY, FOR IRON PIPE

### "T" HANDLE

STOP

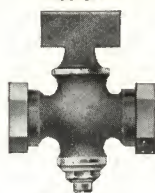


Fig. 5031A

STOP AND WASTE

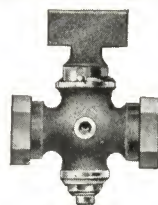


Fig. 5031B

### STOPS

Size.....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Price, Rough.....	per dozen	20.40	21.00	29.40	36.00
Size.....	inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough.....	per dozen	52.80	89.40	149.40	258.00

### STOP AND WASTES

Size.....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Price, Rough.....	per dozen	21.00	21.60	30.00	36.60
Size.....	inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough.....	per dozen	54.00	91.20	152.40	264.00

### LEVER HANDLE

STOP

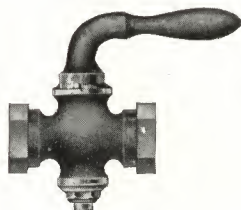


Fig. 5031C

STOP AND WASTE

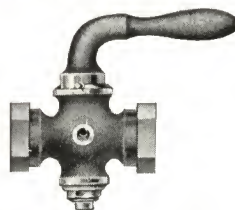


Fig. 5031D

### STOPS

Size.....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Price, Rough.....	per dozen	20.40	21.00	29.40	36.00
" Finished.....	"	25.20	25.80	35.40	45.00
" Nickel plated.....	"	30.00	30.60	41.40	54.00
Size.....	inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough.....	per dozen	52.80	89.40	149.40	258.00
" Finished.....	"	64.80	107.40	179.40	300.00
" Nickel-plated.....	"	76.80	125.40	209.40	342.00

### STOP AND WASTES

Size.....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Price, Rough.....	per dozen	21.00	21.60	30.00	36.60
" Finished.....	"	25.80	26.40	36.00	45.60
" Nickel-plated.....	"	30.60	31.20	42.00	54.60
Size.....	inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Rough.....	per dozen	54.00	91.20	152.40	264.00
" Finished.....	"	66.00	109.20	182.40	306.00
" Nickel-plated.....	"	78.00	127.20	212.40	348.00

## WELL POINTS

### BRASS JACKET, DRIVE WELL



Fig. 1449A

Brass jacket points are made of standard wrought iron pipe. They are punched with elliptical shaped holes of uniform size, equal distances apart, and contain the largest number of holes permissible, while retaining the strength requisite for driving. The driving plug is a malleable casting, swaged into the pipe and riveted. These points are covered with brass wire cloth, which is protected by a heavy perforated jacket.

Trade No.	Inside Diameter Inches	Length of Point Inches	Length of Jacket Inches	PRICE, PER DOZEN	
				No. 60 Gauge	No. 80 Gauge
90	1 1/4	24	18	36.00	52.00
94	1 1/4	30	24	46.00	64.00
98	1 1/4	36	30	56.00	76.00
100	1 1/4	42	36	66.00	88.00
102	1 1/4	48	42	76.00	100.00
104	1 1/4	54	48	86.00	112.00
110	1 1/4	60	54	96.00	124.00
112	1 1/4	66	60	106.00	136.00
114	1 1/4	72	66	116.00	148.00
140	1 1/2	30	24	60.00	80.00
144	1 1/2	36	30	72.00	95.00
146	1 1/2	42	36	84.00	110.00
148	1 1/2	48	42	96.00	125.00
150	1 1/2	54	48	108.00	140.00
152	1 1/2	60	54	120.00	155.00
164	2	30	24	90.00	112.00
168	2	36	30	105.00	130.00
170	2	42	36	120.00	148.00
172	2	48	42	135.00	166.00
174	2	54	48	150.00	184.00
178	2	66	60	180.00	220.00
180	2	72	66	195.00	238.00

### WASHER



Fig. 1449B

These points are made of wrought galvanized pipe, holes bored and countersunk. Each hole is covered with brass wire gauze, held in place by a brass washer and riveted.

Trade No.	Inside Diameter Inches	Length of Point Inches	Number of Holes	PRICE, PER DOZEN	
				No. 60 Gauge	No. 80 Gauge
301	1 1/4	24	60	36.00	52.00
302	1 1/4	30	80	46.00	64.00
303	1 1/4	36	100	56.00	76.00
304	1 1/4	42	120	66.00	88.00
305	1 1/4	48	140	76.00	100.00
322	1 1/2	36	130	72.00	95.00
323	1 1/2	42	150	84.00	110.00
325	2	36	170	105.00	130.00

Prices on other points and pump supplies on application.



## ROD COUPLINGS, ETC.

### IRON ROD COUPLINGS

HEXAGON



Fig. 8670A

BEADED



Fig. 8670B

Hexagon made in malleable iron and brass. Beaded made in malleable iron.

We are able, with improved machinery, to tap these couplings straight through, thus securing absolutely straight couplings.

Size of Rods..... inches	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8} \times \frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16} \times \frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Threads per inch.....	†14	*16	14x12	12	12	12	11	10
Price, Plain Malleable.... per pound	.16	.16	.16	.16	.16	.16	.16	.16
“ Galv. “ “ “	.20	.20	.20	.20	.20	.20	.20	.20
“ Brass “ “ “	.50	.50	.50	.50	.50	.50	.50	.50

†Regular. \*Special.

$\frac{3}{4}$ -inch made in beaded pattern only.

### REDUCER COUPLINGS

For  $\frac{3}{8}$  and  $\frac{1}{2}$ -inch Pipe and Steel Pump Rods

We can furnish couplings for  $\frac{3}{8}$  and  $\frac{1}{2}$ -inch rods to suit either  $\frac{3}{8}$  or  $\frac{1}{2}$ -inch iron pipe, male or female. Price, plain malleable iron, 25 cents; galvanized malleable iron, 30 cents per pound.

### WOOD ROD COUPLINGS



Fig. 8670C

These couplings are made with a socket for the ends of the rod to be driven into to avoid splitting.

Price, 5-inch, Light, Ribbed, for 1 and $1\frac{1}{8}$ -inch Rods, Plain, Two-Hole... per 100									
“ 5 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Galv. “ “ “ “	“	“	“	“	“	“	“	“	10.00
“ 6 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Plain “ “ “ “	“	“	“	“	“	“	“	“	14.00
“ 6 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Galv. “ “ “ “	“	“	“	“	“	“	“	“	16.00
“ 7 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Plain, Three-Hole... “	“	“	“	“	“	“	“	“	20.00
“ 7 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Galv. “ “ “ “	“	“	“	“	“	“	“	“	20.00
“ 7 “ “ “ “ 1 “ $1\frac{1}{8}$ “ “ Galv. “ “ “ “	“	“	“	“	“	“	“	“	24.00



Fig. 8670D

### MALLEABLE IRON DRIVING CAPS

For receiving blows from wood mauls or iron sledges. Are extra heavy and especially designed for driving points.

Size..... inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price..... each	.75	.90	1.50	2.50	3.00

## DRIVE SHOES, ETC.

## DRIVE SHOES

No. 433, MALLEABLE  
IRON



Fig. 5242A

No. 419, CAST STEEL



Fig. 5242B

No. 421, FORGED STEEL

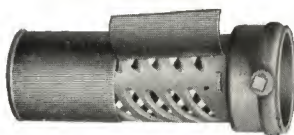


Fig. 5242C

Size, Pipe.....inches	2	2½	3	3½	4	4½	5	5½
No. 433, Malleable Iron.....each	.50	.70	.90	1.20	1.50	....	....	....
“ 419, Cast Steel, Rough..... “	.80	1.10	1.50	2.50	2.75	3.75	4.25	6.50
“ 419, “ “ Finished..... “	1.00	1.30	2.00	3.50	4.00	6.00	7.00	9.00
“ 421, Forged Steel..... “	1.50	2.50	3.50	5.00	6.00	8.00	10.00	....
Size, Pipe.....inches	6	7	8	10	12	14	15	16
No. 419, Cast Steel, Rough.....each	6.50	....	8.00	12.50	25.00	....	....	....
“ 419, “ “ Finished..... “	9.00	....	12.00	18.00	35.00	....	....	....
“ 421, Forged Steel..... “	12.00	15.00	18.00	36.00	48.00	70.00	90.00	110.00

## SUCTION PIPE STRAINERS

WITH SET SCREW



**Fig. 5242D**

WITH MALE THREAD



**Fig. 5242E**

## WITH FEMALE THREAD



Fig. 5242F

Size.....		inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, with Set Screw, or Threaded, Galv., with Brass Gauze each			.28	.28	.32	.36	.50
" " " " " "	without Brass Gauze .....	"	.22	.22	.24	.26	.40
" " " " " "	Plain " " " .....	"	.18	.18	.20	.24	.36

GLOBE  
STRAINER



Fig. 5242G

## GLOBE STRAINERS

Size.....	inches	1¼	1½	2
Price, Plain.....	each	.50	.65	1.00
“ Galvanized.....	“	.60	.75	1.25
“ Brass.....	“	2.75	2.75	3.50

HOSE  
CLEVIS

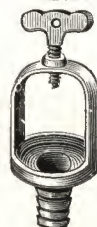


Fig. 5242H

## HOSE CLEVISSES

Price, Malleable, $\frac{3}{4}$ or 1-inch.....	each	.50
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## GAS FIXTURE FITTINGS

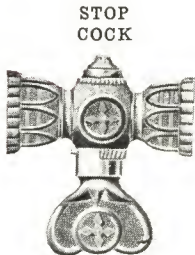


Fig. 580A

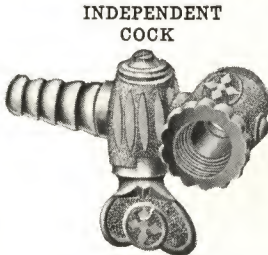


Fig. 580B

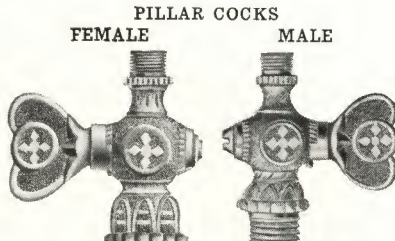


Fig. 580C

Fig. 580D

## STOP OR STRAIGHT COCKS

Size.....inches	$\frac{1}{8} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{1}{2}$
Price, Standard.....per dozen	3.90	4.25	4.55	4.55	4.55	4.90	6.00
" Extra Heavy....."	....	....	6.85	....	....	7.15	7.80

## INDEPENDENT COCKS

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Standard.....per dozen	5.50	6.00	6.50	8.00
" Extra Heavy....."	....	....	9.10	11.50

## PILLAR COCKS

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Female, Standard.....per dozen	3.90	4.25	4.55	5.25
" Extra Heavy....."	....	6.20	6.50	7.15
" Male, Standard....."	4.90	5.20	5.55	6.25

## TOP SWING COCK



Fig. 580E

## TWO-LIGHT PENDANT COCK

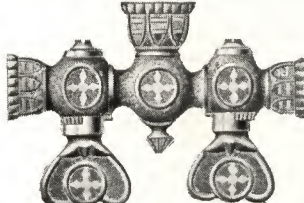


Fig. 580F

## HOSE COCK

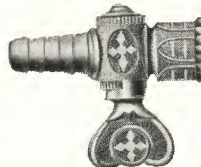


Fig. 580G

## TOP SWING COCKS

Size.....inches	$\frac{3}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$
Price, Standard.....per dozen	5.20	5.55	6.20
" Extra Heavy....."	8.15	8.45	9.45

## TWO-LIGHT PENDANT COCKS

Size.....inches	$\frac{1}{8} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{1}{2}$
Price, Standard.....per dozen	8.45	8.45	9.10	9.10	9.10	10.20	10.60
" Extra Heavy....."	....	13.35	....	13.35	13.65	13.65	15.60

## HOSE COCKS

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, Female, Standard.....per dozen	4.25	4.55	4.90	5.25	8.00
" Extra Heavy....."	....	....	10.00	12.00	....
" Male, Standard....."	4.55	4.90	5.20	5.55	....

## GAS FIXTURE FITTINGS

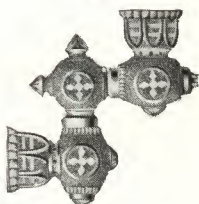
UNIVERSAL  
SWING

Fig. 10398A

SIDE  
NOZZLE

Fig. 10398B

STRAIGHT  
NOZZLE

Fig. 10398C

## UNIVERSAL SWINGS

Size.....	inches	$\frac{1}{8} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{8}$	$\frac{1}{4} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$
Price, Standard .....	per dozen	7.80	8.15	8.45	8.80	8.80	9.10
" Extra Heavy.....	"	....	12.35	12.35	13.00	13.00	14.00

## SIDE NOZZLES

Size.....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Standard .....	per dozen	1.00	1.65	2.30	3.50
" Extra Heavy.....	"	1.95	2.20	2.60	....

## STRAIGHT NOZZLES

Size.....	inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Standard .....	per dozen	1.00	1.65	1.95	3.00
" Extra Heavy.....	"	1.82	1.95	2.20	....

BRAY  
BURNER

Fig. 10398D

BRASS  
PILLAR

Fig. 10398E

MONITOR  
HEATER

Fig. 10398F

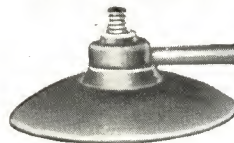
STAND FOR  
MONITOR HEATER

Fig. 10398G

## BRAY BURNERS

Price.....	per gross	11.00
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## BRASS PILLARS FOR LAVA TIPS

Price.....	per gross	2.00
------------	-----------	------

## MONITOR HEATERS

Number .....	1	2	3	4
Price, Heaters.....per dozen	3.00	4.50	6.00	24.00
“ Stands ..... “	3.00	6.00	8.00	.....



## CAST IRON PIPE

### STANDARD PIPE

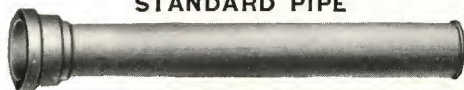


Fig. 3692A

### STANDARD THICKNESS AND WEIGHTS OF CAST IRON PIPE BELL AND SPIGOT PIPE. TURNED AND BORED PIPE

All lengths to lay 12 feet. All weights are approximate; those per foot include allowance for bell. All pipe is tested by water pressure. Turned and bored pipe made to order only.

Nominal Inside Diameter Inches	CLASS A Gas 100-foot Head 43 Pounds Pressure		CLASS B STANDARD 200-foot Head 86 Pounds Pressure		CLASS C MEDIUM HEAVY 300-foot Head 130 Pounds Pressure		CLASS D EXTRA HEAVY 400-foot Head 173 Pounds Pressure	
	Thick- ness Inches	Weight per Foot Pounds	Thick- ness Inches	Weight per Foot Pounds	Thick- ness Inches	Weight per Foot Pounds	Thick- ness Inches	Weight per Foot Pounds
4	.42	20.	.45	21.7	.48	23.3	.52	25.
6	.44	30.8	.48	33.3	.51	35.8	.55	38.3
8	.46	42.9	.51	47.5	.56	52.1	.60	55.8
10	.50	57.1	.57	63.8	.62	70.8	.68	76.7
12	.54	72.5	.62	82.1	.68	91.7	.75	100.
14	.57	89.6	.66	102.5	.74	116.7	.82	129.2
16	.60	108.3	.70	125.	.80	143.8	.89	158.3
18	.64	129.2	.75	150.	.87	175.	.96	191.7
20	.67	150.	.80	175.	.92	208.3	1.03	229.2
24	.76	204.2	.89	233.3	1.04	279.2	1.16	306.7
30	.88	291.7	1.03	333.3	1.20	400.	1.37	450.
36	.99	391.7	1.15	454.2	1.36	545.8	1.58	625.
42	1.10	512.5	1.28	591.7	1.54	716.7	1.78	825.
48	1.26	666.7	1.42	750.	1.71	908.3	1.96	1050.
54	1.35	800.	1.55	933.3	1.90	1141.7	2.23	1341.7
60	1.39	916.7	1.67	1104.2	2.	1341.7	2.38	1583.3
72	1.62	1283.4	1.95	1545.8	2.39	1904.2	....	.....
84	1.72	1633.4	2.22	2104.2	....	.....	....	.....

### FLANGED WATER PIPE

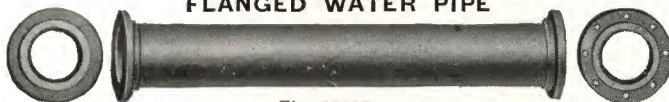


Fig. 3692B

Flanged Cast Iron Pipe, sizes 3 to 48 inches, same thickness as Standard Pipe. Thickness of flange equals approximately  $1\frac{1}{4}$  times thickness of pipe, plus  $\frac{1}{8}$  inch. Pipe made in 12-foot lengths and faced  $\frac{1}{8}$  inch short for gaskets.

### APPROXIMATE WEIGHTS OF LEAD AND HEMP REQUIRED FOR JOINTS

Pipe .....	inches	4	6	8	10	12	14	16	18	20
Lead, 2 inches Thick .....	pounds	7.5	10.25	13.25	16	19	22	30	33.8	37
Hemp .....	"	.21	.31	.44	.53	.61	.81	.94	1	1.25
Pipe .....	inches	24	30	36	42	48	54	60	72	84
Lead, 2 inches Thick .....	pounds	44	54.25	64.75	75.25	85.5	97.6	108.30	128	147
Hemp .....	"	1.50	2.06	3	3.62	4.37	6.25	8.25	12.5	15

Inquiries and orders should clearly indicate the approximate number of lengths or feet of pipe of each size and class required. Give the desired delivery point and time of shipment, with any particulars as to sizes required first, the service intended, etc.; this will facilitate prompt attention and avoid delays.



## SPECIALS FOR CAST IRON PIPE

QUARTER BEND



Fig. 14 A

EIGHTH BEND



Fig. 14 B

SIXTEENTH BEND



Fig. 14 C

TEE



Fig. 14 D

CROSS



Fig. 14 E

### QUARTER BENDS, 90°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	82	130	200	278	366	504	750	888	1070	1656	2836	4820

### EIGHTH BENDS, 45°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	66	105	150	202	265	442	558	663	964	1515	2291	4012

### SIXTEENTH BENDS, 22½°

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36
Weight..... pounds	66	105	150	202	265	382	484	574	858	1372	2080	4012

### TEES

Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4x4x4	128	10x10x10	395	12x12x 8	474	20x20x20	1438
6x6x6	200	10x10x 8	371	12x12x 6	458	24x24x24	2113
6x6x4	183	10x10x 6	352	12x12x 4	445	30x30x30	3660
8x8x8	294	10x10x 4	338	14x14x14	724	36x36x36	5567
8x8x6	270	12x12x12	512	16x16x16	969	48x48x48	....
8x8x4	255	12x12x10	491	16x16x12	861	.....	....

### CROSSES

Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4x4x4x4	166	10x10x10x10	493	12x12x 8x 8	545	20x20x20x20	1828
6x6x6x6	257	10x10x 8x 8	443	12x12x 6x 6	512	24x24x24x24	2694
6x6x4x4	221	10x10x 6x 6	406	12x12x 4x 4	486	30x30x30x30	4609
8x8x8x8	372	10x10x 4x 4	377	14x14x14x14	963	36x36x36x36	6857
8x8x6x6	325	12x12x12x12	623	16x16x16x16	1259	48x48x48x48	....
8x8x4x4	294	12x12x10x10	577	18x18x18x18	1454	.....	....

SLEEVE



Fig. 14 F

PLUG



Fig. 14 G

CAP



Fig. 14 H

Size..... inches	4	6	8	10	12	14	16	18	20	24	30	36	48
Weight, Sleeves..... pounds	61	87	119	176	223	280	443	518	625	821	1262	1772	2879
" Plugs..... "	8	14	24	38	50	65	96	121	156	472	723	1050	2047
" Caps..... "	26	40	59	81	104	149	198	242	308	442	704	1084	2341

# SPECIALS FOR CAST IRON PIPE

"Y" BRANCH

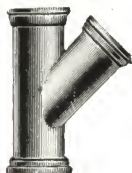


Fig. 8948A

REDUCER



Fig. 8948B

INCREASER



Fig. 8948C

"Y" BRANCHES		REDUCERS						INCREASERS	
Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds	Size Inches	Weight Pounds
4 x 4	103	6 x 4	97	14 x 10	320	20 x 16	711	4 x 6	104
6 x 6	181	8 x 6	143	14 x 8	288	20 x 14	638	4 x 8	132
8 x 8	291	8 x 4	119	14 x 6	256	20 x 12	576	4 x 10	162
10 x 10	434	10 x 8	198	16 x 14	461	24 x 20	987	6 x 8	150
12 x 12	632	10 x 6	169	16 x 12	405	24 x 18	901	6 x 10	180
14 x 14	985	10 x 4	146	16 x 10	364	24 x 16	838	6 x 12	218
16 x 16	1413	12 x 10	261	18 x 16	569	24 x 14	764	8 x 10	201
18 x 18	1737	12 x 8	231	18 x 14	502	30 x 24	1398	8 x 12	240
20 x 20	2199	12 x 6	202	18 x 12	446	36 x 30	2264	10 x 12	267
24 x 24	3599	12 x 4	179	18 x 10	405	.....	....	12 x 14	378
.....	....	14 x 12	360	20 x 18	776	.....	....	.....	....

SPLIT TEE

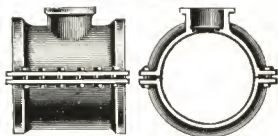


Fig. 8948D

SPLIT SLEEVE

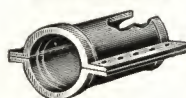


Fig. 8948E

## SPLIT TEES, WITH ANY SIZE OUTLET

Size...inches	3	4	6	8	10	12	14	16	18	20	24	30	36
Price...each	6.50	8.00	10.00	12.50	17.50	20.00	22.50	27.50	35.00	40.00	50.00	60.00	70.00

## SPLIT SLEEVES

Size...inches	3	4	6	8	10	12	14	16	18	20	24	30	36
Price...each	3.00	3.00	5.25	8.25	11.50	13.50	20.00	21.00	28.50	38.50	40.00	45.00	55.00

FLANGE AND SPIGOT



Fig. 8948F

FLANGE AND BELL

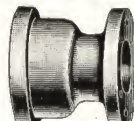


Fig. 8948G

FLANGE



Fig. 8948H

Size .....	3	4	6	8	10	12	14	16	18	20	24
Length, Flange and Spigot.....inches	16	16	16	16	18	18	18	20	20	20	24
Laying Length, Flange and Bell .....	4	4	4	4	6	6	6	6	6	6	6
Price, Flange and Spigot .....	1.90	2.50	3.75	5.95	9.00	11.85	14.70	20.00	22.80	27.50	43.00
" Flange and Bell.. .."	2.20	2.80	4.05	6.00	8.75	11.25	14.40	18.00	19.70	23.90	40.00
" Flange, Faced and Drilled .."	2.25	3.00	4.00	6.50	9.25	12.50	16.00	26.00	31.00	34.00	46.00

**"BUFFALO" PATTERN STOP COCK BOXES****2½-INCH BOX****Fig. 7524A****EXTENSION SECTION****Fig. 7524B****COVERS****Fig. 7524D****Fig. 7524E****KEYS****Fig. 7524C****Fig. 7524F****SERVICE BOXES, 2½ INCHES IN DIAMETER, IN TWO PIECES**

Number.....	88	89 A	90 B	91 C	92 C	92 D	93 D	93 E
Extension.....inches	12	12-20	18-26	21-32	24-38	24-42	36-48	36-54
Price.....each	.55	.60	.65	.70	.75	.80	.85	.90
Number.....	94 D	94 E	95 E	100 E	100 F	95 G	100 G	.....
Extension.....inches	42-57	42-60	48-66	54-72	54-78	48-84	54-90	.....
Price.....each	.95	1.00	1.10	1.15	1.20	1.30	1.35	.....

When ordering, always state if for gas or water.

Keys, 4 cents each. Covers, extra, 12 cents. Bolts, extra, 10 cents.

**OLD STYLE SERVICE BOXES, 3 INCHES IN DIAMETER**

Number.....	0	1	1½	2	3	4	5	7
Extension Stationary.....inches	10	13-21½	18-28	24-39	32-48	34-58	42-66	48-72
Price.....each	.65	.80	.85	.90	1.00	1.05	1.15	1.30

Covers marked "Water" unless otherwise specified.

**EXTENSION SECTIONS FOR 2½-INCH SERVICE BOXES**

Number.....	151	152	153	154
Increasing Length of Box.....inches	9½	16½	28	33
Price.....each	.35	.40	.50	.55

**EXTENSION SECTIONS FOR 3-INCH SERVICE BOXES**

Number.....	155	156	157
Increasing Length of Box.....inches	20	24	30
Price.....each	.45	.50	.55

These boxes can be furnished with stationary rod attachment with guide ring—price ranging from 20 to 30 cents net per box, extra, depending on length.

Combination stop box keys (for stationary rod), 50 cents.



## ROADWAY, METER AND GAS DRIP BOXES

ROUND HEAD  
FLANGED BASE

Fig. 9793A

ROADWAY

SQUARE HEAD  
OPEN BASE

Fig. 9793B

EXTENSION  
METER BOX

Fig. 9793C

SQUARE OR ROUND HEAD, OPEN OR FLANGED BASE  
For Water or Gas

Number, Flanged Base .....	41 Q	42 Q	42 R	43 R	44 R	45 R
" Open Base .....	141 Q	142 Q	142 R	143 R	144 R	145 R
Weight .....	42	47	54	60	63	72
Extension .....	18 to 24	27 to 34	27 to 42	34 to 48	39 to 54	46 to 60
Price, Flanged Base .....	2.00	2.15	2.35	2.55	2.75	2.85
" Open Base .....	1.85	2.00	2.20	2.30	2.40	2.50

No. 49 extension piece increases length of box 18 inches, price, 70 cents.

## EXTENSION METER BOXES

Number .....	173
Extends .....	inches 28 to 38
Diameter, Inside .....	" 7 1/4
Price .....	each 2.75

No. 71 extension piece increases length of box 14 inches, price, 1.00.

## GAS DRIP BOXES

No. 178



Fig. 9793D

No. 106



Fig. 9793E

No. 55



Fig. 9793F

Number	Outside Diam. of Head Inches	Smallest Diam. of Shaft Inches	Square Flange Inches	Round Flange Inches	Length Inches	Price
178	9	7 1/2	12	.....	16	2.25
106	7	4 7/8	8 1/2	.....	16	1.25
55	9	6	.....	10	17	1.75

## VALVE BOXES

VALVE BOX



Fig. 8245A

EXTENSION SECTION



Fig. 8245B

COVERS



Fig. 8245C



Fig. 8245D

SIZE "AAA"  
EXTRA SHORT SHAFT

Fig. 8245E

## VALVE BOXES—5¼-INCH SHAFT, No. 6 BASE

We make our valve boxes with locking covers, so that it is impossible for horse to tip the cover by stepping on it. Our improved covers are in high favor wherever seen.

Size. ....	AAA	AA	A	B	C	CC	D	DD	E	F	G	H
Weight... pounds	68	87	93	100	106	112	115	120	125	130	137	149
Extension... inches	17	22-28	28-40	36-48	42-54	48-60	42-66	48-72	60-72	60-84	72-84	72-96
Price ..... each	2.45	2.85	3.00	3.15	3.30	3.50	3.65	3.85	3.95	4.10	4.30	4.50

No. 58 extension piece lengthens box 14 inches. Price, .70 each.

We manufacture valve boxes, 7-inch shaft smallest diameter, and will quote prices on application.

Size "AAA," extra short shaft with No. 140 square flange base, height, 10½ inches, refers to the stationary shaft No. 57, in connection with any oval base named herein, and is for covering valves when set close to the surface.

## DIRECTIONS

In setting valve box the base should rest 2 or more inches above the flanged joints of the valve dome.

The nut of the valve should be about on a line with the hub at lower end or middle section of a 5¼-inch box, i. e., should come just above the base, as this will leave ample space above the valve.

It is preferable to use large size base over the valves, though some use No. 4 base, even with 16-inch valve.

In such case, valve should be covered with earth to within, say, 12 inches of top of nut, the base thus protecting the working parts of valve.

The valve boxes do not have to be as long as the depth to the top of the main, as the flange joint of the valve is usually 3 to 6 inches higher than the top of main.

All sections of our valve boxes are interchangeable and adapted for use with any of our bases.

## VALVE BOX BASES

ROUND BASE, No. 6



Fig. 8334A

OVAL BASE, No. 6



Fig. 8334B

No. 4 round base. For 4-inch valves or smaller sizes, is used for round or oval valves. With this base the valve box is 3 inches shorter than with No. 6 base. Inside dimensions: Diameter at bottom,  $10\frac{7}{8}$  inches; height, 8 inches. Reduces price of valve box, net, 25 cents.

No. 6 round base. For 8-inch round valves or smaller sizes. Inside dimensions: Diameter at bottom,  $14\frac{3}{8}$  inches; height, 11 inches. This is the standard size base used in quoting lists and prices.

No. 6 oval base. For 6 and 8-inch oval valves. Inside dimensions at bottom,  $15 \times 11\frac{1}{8}$  inches; height, 11 inches. This is the standard size base used in quoting lists and prices.

No. 8 round base. For 10-inch round valves or smaller sizes. With this base the box is same length as with No. 6 base. Inside dimensions: Diameter at bottom,  $17\frac{1}{4}$  inches; height, 11 inches. Increases price of valve box, net, 25 cents.

No. 16 round base. For 12 to 20-inch round valves. With this base the valve box is  $4\frac{1}{4}$  inches longer than with No. 6 base. Inside dimensions: Diameter at bottom, 24 inches; height,  $15\frac{1}{4}$  inches. Increases price of valve box, net, 1.25.

DOME BASE, No. 140



Fig. 8334C

OVAL BASE, No. 160



Fig. 8334D

No. 140 dome base. This base is particularly adapted for use where valves are set near the surface and is suitable for any size valve up to 24 inches; has flange at bottom 17 inches square. With this base the valve box is 6 inches shorter than with No. 6 base. Price same as No. 6 base.

No. 160 oval base. For 16-inch valves or smaller sizes. With this base the valve box is  $1\frac{1}{2}$  inches shorter than with No. 6 base. Inside dimensions at bottom,  $21 \times 12\frac{1}{2}$  inches; height,  $9\frac{1}{2}$  inches. Increases price of valve box, net, 35 cents.

No. 162 oval base. For 24-inch valves or smaller sizes. Inside dimensions at bottom,  $26 \times 16$  inches; height, 10 inches. Increases price of valve box, net, 1.25.

No. 16—24-inch round base. For 16 to 24-inch side-geared valves. With this base the valve box is 12 inches longer than with No. 6 base. Inside dimensions: Diameter at bottom, 30 inches; height, 23 inches. Increases price of valve box, net, 4.00.



## MANHOLE FRAMES AND COVERS, ETC.

CHICAGO STANDARD  
AND SUBURBAN PATTERN

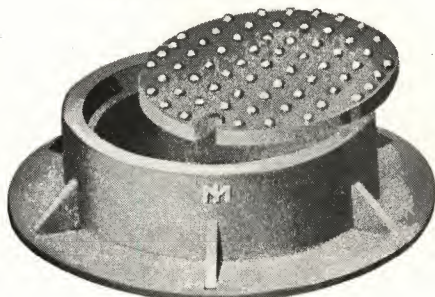


Fig. 3526A

LAWN COVER AND RING

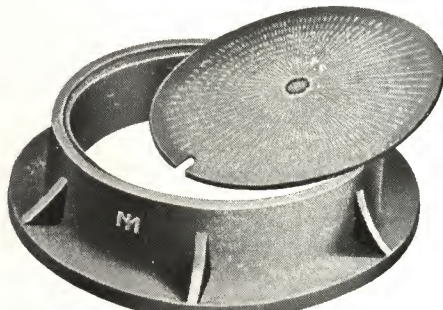


Fig. 3526B

### CHICAGO STANDARD AND SUBURBAN PATTERN

Number	Diameter of Opening Inches	Height Inches	Outside Diameter Inches	Weight with Cover Pounds	Price Each
5 Chicago Standard	21	9	36	500	20.00
6 Suburban Pattern	20½	9	35	315	12.50

Above can be furnished with perforated covers if desired.

### LAWN COVERS AND RINGS

Style	Diameter of Opening Inches	Height Inches	Outside Diameter of Lower Flange Inches	Weight Pounds	Price Each
Light Pattern	18	6	27	150	6.00
Heavy "	18	6	27	315	12.50

### CONDUIT FRAMES AND COVERS

No. 1

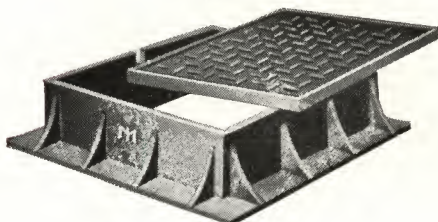


Fig. 3526C

No. 2

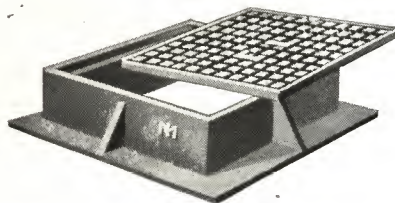


Fig. 3526D

Number	Size of Cover Inches	Size of Opening Inches	Size of Bottom Flange, Inches	Height Inches	Weight Pounds	Price Each
1	.....	26 x 32	38x42	9	755	39.00
2	20x20	18½x18½	28x28	5	260	10.50

## CATCH BASIN AND MANHOLE COVERS, ETC.

## COVERS

CATCH BASIN



Fig. 3543A

MANHOLE

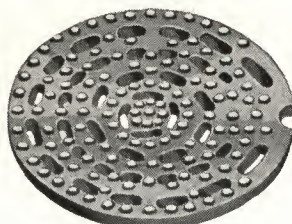


Fig. 3543B

## CATCH BASIN COVERS

Diameter .....	inches	18	20
Weight .....	pounds	20	30
Price, Plain Covers.....	each	1.00	1.50

## MANHOLE COVERS

Price, Perforated or Solid for No. 5 Manhole Frame; Weight, 145 pounds....	each	6.00
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CISTERN COVER AND RING

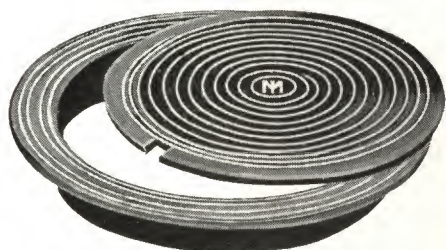


Fig. 3543C

COALHOLE RING AND COVER

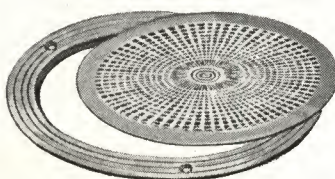


Fig. 3543D

## CISTERN COVERS AND RINGS

Diameter of Opening Inches	Outside Diameter of Flange Inches	Height Inches	Weight Pounds	Price Each
20	26	2½	160	6.50

## COALHOLE RINGS AND COVERS

Diameter of Cover Inches	Outside Diameter of Ring Inches	Price Cover only Each	Price Ring only Each
16	20½	1.10	.75



## SEWER GRATES, ETC.

HOPPER

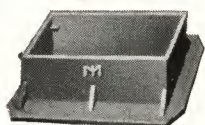


Fig. 3502A

FRAME



Fig. 3502B

SEWER GRATE



Fig. 3502C

## FOR DRAINING STREET GUTTERS INTO SEWERS

Size of Opening Inches	Size of Bottom Flange Inches	Height Inches	Approximate Weight Pounds	Price per Set
24x13	33x32	9	310	12.50

## GUTTER BOXES AND GRATES

GUTTER BOX

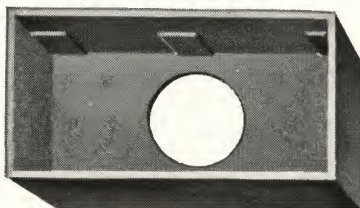


Fig. 3502D

GRATE

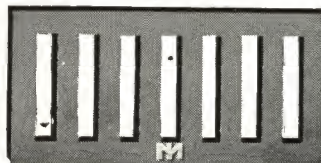


Fig. 3502E

Size of Box Inches	Size of Grate Inches	Size of Bottom Opening Inches	Height of Box Inches	Approximate Weight Pounds	Price per Set
23 1/4 x 16 1/2	22x15	10	5	225	9.00

## METER COVERS AND FRAMES

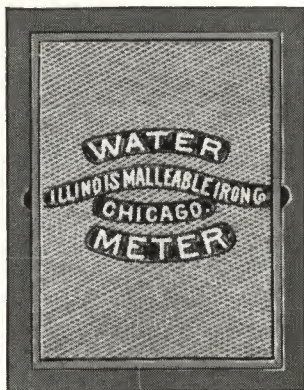
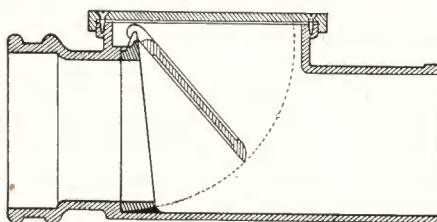


Fig. 3502F

Size of Cover Inches	Size of Frame Inches	Approximate Weight Pounds	Price per Set
21 1/2 x 17 1/2	27 1/2 x 23 1/2	120	6.00



**PALMER BACK WATER TRAPS, ETC.****PALMER BACK WATER TRAPS****IRON BODY****Fig. 3584A****SECTIONAL****Fig. 3584B**

Made of cast iron, with hub and spigot connection, in sizes to fit regular cast iron soil pipe. Provided with accessible handhole or cleanout, with cover bolted on, with heavy brass screws. Seat and valve are made of non-corrosive white metal, and are securely fitted to inside of iron body. The valve is a swinging gate, swinging into handhole opening, thus allowing a free unobstructed round opening for passage of sewage. The full size of pipe yet closing tightly and preventing ingress of water through backflow or pressure.

Size...inches	2	3	4	5	6	8	10	12	16	18	24
Price...each	6.00	6.50	7.50	9.00	10.00	15.00	30.00	40.00	90.00	135.00	335.00

Iron body traps with brass valves made to order. Prices on application.

**PALMER BACK WATER VALVE****Fig. 3584C****SOIL PIPE TESTING PLUG****Fig. 3584D****PALMER BACK WATER VALVES**

Made entirely of non-corrosive white metal and consists of a flanged seat with swinging gate. The flange on seat is made in sizes to fit the hub openings of regular glazed tile pipe with opening through same, and swinging gate corresponding to bore of pipe. It is intended to be fitted between two lengths of pipe, and when cemented in place forms a positive back water valve yet offers no resistance or obstruction to flow of sewage.

Size .....inches	2	3	4	5	6	8	9	10	12	15
Price.....each	1.00	1.20	1.60	2.00	2.40	3.20	4.00	15.00	25.00	40.00

Brass valves made to order. Prices on application.

**SOIL PIPE TESTING PLUGS**

Size .....inches	2	3	4	5	6
Price .....each	1.00	1.25	1.50	2.00	2.50

Galvanized iron. Extra quality rubber rings, will fit standard or extra heavy pipe.

## MUELLER WATER TAPPING MACHINES

FOR TAPPING WATER MAINS AND INSERTING CORPORATION COCKS UNDER PRESSURE

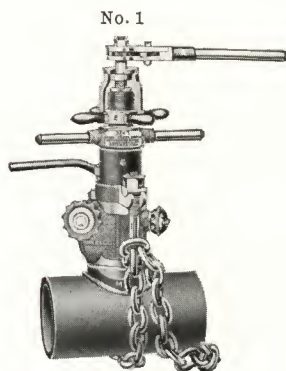


Fig. 2862A

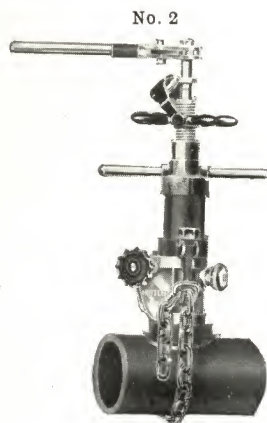


Fig. 2862B

These strong and compact machines are adapted for making a single tap and inserting a corporation cock in a water main under pressure, for connecting a service pipe or for making a number of taps and inserting cocks to attach to a gooseneck for large service connection.

Price, No. 1 .....	each	90.00
" " 2 .....	"	100.00

### STANDARD EQUIPMENT

Standard equipment includes: Ratchet handle complete; combined feed nut and yoke with four-arm handle; tools with Mueller thread, sizes  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$  and 1-inch; plugs, male screw, sizes  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$  and 1-inch; malleable iron saddles, sizes for 4, 6, 8 and 10-inch cast iron pipe; small rubber gasket for top of saddles; large rubber gasket for all sizes of cast or wrought iron pipe; chain for 4 to 12-inch pipe; chain wrench, and body cleaning chisel. This equipment will always be furnished, unless otherwise specified.

### EXTRA TOOLS, WITH MUELLER THREAD

Price, $\frac{1}{2}$ -inch Combined Drill, Reamer and Tap .....	each	4.00
" $\frac{5}{8}$ " " " " " " " .....	"	4.50
" $\frac{3}{4}$ " " " " " " " .....	"	5.50
" 1 " " " " " " " .....	"	6.50

$\frac{1}{2}$ -inch tap, also taps thread for  $\frac{3}{8}$ -inch corporation cock.

### EXTRA DRILLS, REAMERS AND TAPS—WITH IRON PIPE THREAD

When Purchased Separately

Size .....	inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price .....	each	4.00	4.00	5.50	6.50

Drill, reamer and tap, with standard iron pipe thread, sizes  $\frac{3}{8}$  to 1-inch, will be furnished without additional cost, when specified, instead of the four with Mueller thread given in the standard equipment.

No. 2 machine is same style and capacity as No. 1, but is heavier, and affords more power for the large taps.

## LEAD GOOSENECKS, ETC.

### SERVICE CONNECTIONS



Fig. 9021A

Our wiped joint goosenecks are furnished with corporation cocks complete with coupling, extra strong lead pipe and extra heavy male soldering nipple with extra heavy hand wiped joints. Female soldering nipples furnished if desired. Unless otherwise specified, cocks will be furnished to fit Mueller Machine, for screw plug with eighth bend coupling and male soldering nipple. An extra charge will be made for corporation cocks for wood mains or cocks of special construction. We will furnish lead goosenecks for any make of machine, also other lengths and weights of pipe or special fittings upon specifications.

Prices on application.

Size.....inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Length of Lead Pipe.....inches	18	18	18	18	24	30	36
Price.....each	5.25	6.25	7.25	10.75	19.50	31.00	48.50

### BRASS WATER CONNECTIONS

#### FOUR-BRANCH WITH UNION COUPLING INLETS

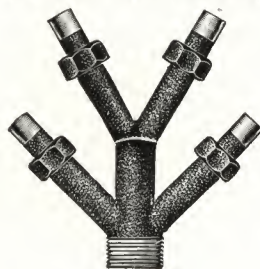


Fig. 9021D

#### TWO-BRANCH LEAD PIPE INLETS



Fig. 9021B

#### THREE-BRANCH LEAD PIPE INLETS



Fig. 9021C

Number of Branches.....	2	3	4	6	8
Size of Outlet, Iron Pipe.....inches	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
" " Inlets....."	1	1	1	1	1
Price, Inlets for Lead Pipe.....	2.05	3.25	5.40	9.70	16.25
" " " Iron " Male.....	2.30	3.65	5.90	10.45	17.25
" " " Lead Union Couplings.....	4.10	6.00	8.60	18.35	26.05
" " " Iron Pipe Unions.....	4.25	6.20	8.90	18.75	26.60
" " " Lead Flange Unions.....	5.00	7.95	11.05	22.80	34.00

Outlet end for lead pipe at same price.



# LEAD MELTING FURNACES

## ON WHEELS

WITH DOOR

WITH DOOR AND POT RACK

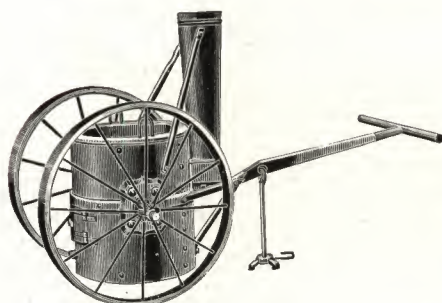


Fig. 9013A



Fig. 9013B

## ON WHEELS WITH DOOR, No. 1

Diameter, 21½ inches; height, 24 inches; diameter of pot, 16¾ inches; depth of pot, 11 inches; capacity, lead, 700 pounds.

Price .....each 70.00

ON LEGS  
WITH DOOR

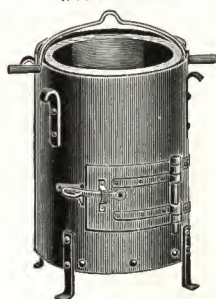


Fig. 9013C

## ON WHEELS WITH DOOR, No. 2

Diameter, 16 inches; height, 24 inches; diameter of pot, 11½ inches; depth of pot, 8 inches; capacity, lead, 260 pounds.

Price .....each 63.00

## ON WHEELS WITH DOOR AND POT RACK

Number .....	1	2
Diameter.....inches	21½	16
Height....."	24	24
Diameter of Pot....."	16¾	11½
Depth of Pot....."	11	8
Capacity, Lead.....pounds	700	260
Price.....each	74.00	67.00

## ON LEGS WITH DOOR

Number .....	1	2
Diameter.....inches	21½	16
Height....."	24	24
Diameter of Pot....."	15½	11½
Depth of Pot....."	10½	8
Capacity, Lead.....pounds	600	260
Price.....each	49.00	42.00

## ON LEGS WITH DOOR AND SMOKESTACK

Number .....	1	2
Diameter.....inches	21½	16
Height....."	24	24
Diameter of Pot....."	15½	11½
Depth of Pot....."	10½	8
Capacity, Lead.....pounds	600	260
Price.....each	52.00	45.00

## DRINKING FOUNTAINS FOR BEAST



Fig. 111A

Iron drinking fountain with self-closing cock; fountain to fasten on stone.

### DIMENSIONS

Height to Top of Rim, 21 inches.

Length of Trough, 46 inches.

Width of Trough, 25 inches.

Base, 40x18½ inches.

Price, as described, Painted .....	each	60.00
" " " Bronzed .....	"	68.00



Fig. 111B

Iron drinking fountain with overflow, without self-closing cock; fountain to fasten on stone.

### DIMENSIONS

Height to Top of Rim, 21 inches.

Length of Trough, 46 inches.

Width of Trough, 25 inches.

Base, 40x18½ inches.

Price, as described, Painted .....	each	45.00
" " " Bronzed .....	"	51.00

## DRINKING FOUNTAINS

FOR MAN AND BEAST



Fig. 112A

Iron drinking fountain with self-closing cock for horse trough, and self-closing valve operated by button on top of standard for drinking spout; fountain to fasten on stone.

### DIMENSIONS

Height to Top of Column, 38 inches.

Length of Trough, 46 inches.

Width of Trough, 25 inches.

Base, 40x18½ inches.

Price, as described, Painted .....	each	80.00
" " " Bronzed .....	"	86.00
" without Self-Closing Devices, Painted .....	"	65.00
" " " " " Bronzed .....	"	71.00



## DRINKING FOUNTAINS

FOR MAN AND BEAST



Fig. 127A

Iron drinking fountain with self-closing valve for horse trough and white metal bubbling cup and valve for man basin; fountain to fasten on stone.

## DIMENSIONS

Height to Top of Rim, 21 inches.

Length of Trough, 46 inches.

Width of Trough, 25 inches.

Base, 40x18½ inches.

Price, as described, Painted .....	each	98.00
" " " Bronzed .....	"	108.00

## DRINKING FOUNTAINS

FOR MAN AND BEAST



Fig. 135A

Iron drinking fountain with self-closing valve for horse trough, and white metal bubbling cup and valve for man basin; fountain to fasten on stone.

### DIMENSIONS

Height to Top of Rim, 21 inches.

Length of Trough, 46 inches.

Width of Trough, 25 inches.

Base, 40x18½ inches

Price, as described, Painted.....	each	98.00
“ “ “ Bronzed.....	“	108.00





## DRINKING FOUNTAINS

FOR MAN AND BEAST



Fig. 162A

Iron drinking fountain with self-closing faucet for all receptacles; fountain to fasten on stone or into ground.

## DIMENSIONS

Height above Ground, 67 inches.

Height to Top of Horse Trough, 27 inches.

Diameter at Base, 28 inches.

Height to Top of Man Trough, 34 inches.

Horse Trough, 33x22x11 inches.

Base Plate for Stone, 22x22 inches.

Price, as described, to fasten on Stone, Painted .....	each	150.00
" " " " " " " " Bronzed .....	"	165.00
" " " " " " " " in Ground, Painted .....	"	170.00
" " " " " " " " Bronzed .....	"	185.00

## BLOW-OFF TANKS AND CATCH BASINS

## CAST IRON

STEAM BLOW-OFF TANK

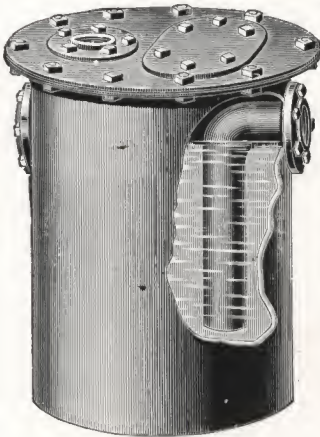


Fig. 4848A

GRAVEL CATCH BASIN

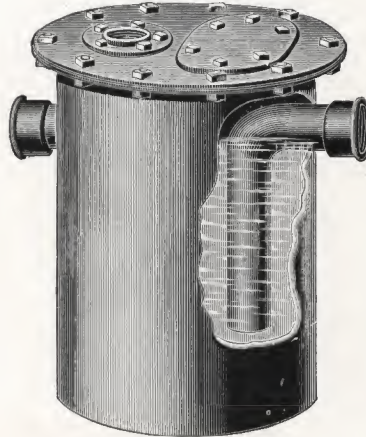


Fig. 4848B

These are especially adapted for receiving boiler blow-off water, cylinder drains, drips from steam apparatus, and as hot wells for condensers.

DIMENSIONS INCHES		Weight Pounds	Price Each	DIMENSIONS INCHES		Weight Pounds	Price Each
Diameter	Depth			Diameter	Depth		
18	18	300	20.00	30	54	1150	80.00
18	24	350	25.00	30	60	1250	85.00
18	30	400	30.00	36	36	1200	85.00
18	36	450	35.00	36	42	1300	95.00
24	24	500	40.00	36	48	1400	105.00
24	30	575	45.00	36	54	1500	115.00
24	36	650	50.00	36	60	1600	125.00
24	42	725	55.00	42	42	1500	110.00
24	48	800	60.00	42	48	1650	120.00
24	54	875	65.00	42	54	1800	130.00
24	60	950	70.00	42	60	1950	140.00
26	30	650	50.00	48	48	2100	150.00
26	36	725	55.00	48	54	2250	160.00
26	42	800	60.00	48	60	2400	170.00
26	48	875	65.00	48	66	2550	180.00
26	54	950	70.00	48	72	2700	190.00
26	60	1025	75.00	60	60	4500	320.00
30	30	750	60.00	60	66	4750	340.00
30	36	850	65.00	60	72	5000	360.00
30	42	950	70.00	60	78	5250	380.00
30	48	1050	75.00	..	..	....	.....

When ordering blow-off tank always state size of inlet and outlet connections, also size of vapor pipe. 3-inch and smaller are always tapped and the larger sizes flanged. The hubs are for 4-inch and 6-inch cast iron soil pipe on the gravel basins.

## FIRE HYDRANTS

### ECLIPSE ANTI-FREEZING

No. 3



Fig. 6723A

STANDARD HYDRANT



Fig. 6723B

No. 3

Diam. of Inlet Pipe Inches	Pave-ment to Center of Inlet Feet	One 2 1/2-in. Hose Nozzle	Two 2 1/2-in. Hose Nozzle	Three 2 1/2-in. Hose Nozzle	One Steamer and One 2 1/2-in. Nozzle	One Steamer and Two 2 1/2-in. Nozzle	Frost Case Standard Length	Each Ft. in Length of Stand-pipe Extra	Each Ft. in Length of Frost Case Extra
3	5	32.00	34.00	36.00	34.00	36.00	7.00	1.50	1.00
4	5	32.00	34.00	36.00	34.00	36.00	7.00	1.50	1.00
5	5	34.00	36.00	38.00	36.00	38.00	7.00	1.50	1.00
6	5	34.00	36.00	38.00	36.00	38.00	7.00	1.50	1.00

No. 6

6	5	47.00	49.00	51.00	49.00	51.00	53.00	10.00	2.25	2.00
---	---	-------	-------	-------	-------	-------	-------	-------	------	------

No. 10

6	5	47.00	49.00	51.00	49.00	51.00	53.00	10.00	2.25	2.00
---	---	-------	-------	-------	-------	-------	-------	-------	------	------

Nos. 6 and 10 hydrants are same as No. 3, except having a larger valve opening and standpipe.

Hydrants to be set 7 feet in the ground, or deeper are furnished with wrought iron standpipe in which event add 3.00 per foot to above list.

In ordering always give following information, viz.—

Whether wrought iron pipe thread, flange, bell or spigot connection. Size of bottom connection. Length from pavement to center of inlet. Size and form of nut to open hydrant. Whether to turn to right or left to open. Number and size of nozzles. Send hydrant cap or hose coupling for gauge of thread.

Unless otherwise ordered, hydrant thread will be made to open by turning to the left. Frost cases furnished if desired.



## FIRE HYDRANTS

## ECLIPSE ANTI-FREEZING

No. 2, FOR PRIVATE CORPORATIONS  
1½-INCH

Fig. 6722A

2-INCH



Fig. 6722B

No. 4 DOUBLE-VALVE HYDRANT  
FOR SPRINKLING PURPOSES

Fig. 6722C

## No. 2-1½-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	16.30	16.45	16.80	17.15	17.50	18.00	19.50	22.00

## No. 2-2-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	22.25	22.50	23.00	23.50	24.00	24.75	27.00	30.00

## No. 4-2-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	28.25	28.50	29.00	29.50	30.00	30.75	33.00	36.00

## No. 4-2½-INCH INLET AND OUTLET

To Set in Ground.....feet	1½	2	3	4	5	6	8	10
Price.....each	32.25	32.50	33.00	33.50	34.00	34.75	37.00	40.00

The No. 2 hydrant is designed for private purposes, such as for stockyards, factories, lumberyards, railroads, fertilizing purposes, etc. The No. 4 hydrant is designed for sprinkling or other purposes, where hydrant is to be operated very often each day.

Unless otherwise ordered, inlet is made for wrought iron pipe.

# M HYDRANTS AND STREET WASHERS

## ANTI-FREEZING

COMPRESSION  
HYDRANT



Fig. 5265A

SELF-CLOSING  
HYDRANT



Fig. 5265B

STREET  
WASHER

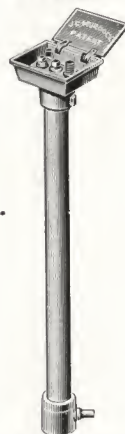


Fig. 5265C

### COMPRESSION HYDRANTS

To set in Ground .....	feet	2	3	4	5	6
Price, $\frac{3}{4}$ -inch .....	each	9.00	10.00	11.00	12.00	13.00
" 1 " .....	"	11.50	12.50	13.50	14.50	15.50

### SELF-CLOSING HYDRANTS

To set in Ground .....	feet	2	3	4	5	6
Price, $\frac{3}{4}$ -inch .....	each	11.00	12.00	13.00	14.00	15.00

### STREET WASHERS

To set in Ground .....	feet	2	3	4	5	6
Price, $\frac{3}{4}$ -inch .....	each	8.00	8.50	9.50	10.50	11.50
" 1 " .....	"	9.00	10.00	11.00	12.00	13.00

In ordering, be careful to give length and whether wanted for lead or iron pipe.

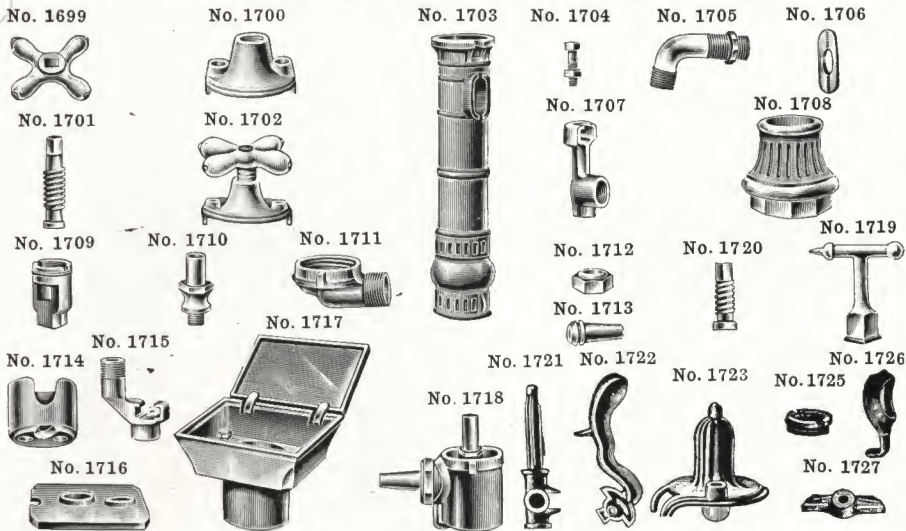
**M HYDRANT AND STREET WASHER REPAIRS**

Fig. 5287A

No.	Name of Part	$\frac{3}{4}$ -in.	1-in.
1699	Hydrant Handles..... each	.12	.15
1700	“ Top.....	.25	.30
1701	“ Screw.....	.40	.40
1702	“ Top, Complete.....	.75	.85
1703	“ Stock for Compression.....	.60	1.00
1703A	“ “ Self-closing.....	1.00	.....
1704	“ Bolt and Nut.....	.10	.10
1705	“ Nozzle and Locknut.....	.30	.50
1706	“ Slide.....	.05	.05
1707	“ Stirrup and Tee.....	.25	.50
1708	“ Base.....	.25	.25
1709	Valve Body for Hydrant or Street Washer.....	.75	.90
1710	“ Stem “ “ “ “.....	.40	.50
1711	Bottom Connection for Hydrant or Street Washer.....	.30	.40
1712	Tail Nut for Hydrant or Street Washer.....	.10	.12
1713	“ Coupling for Hydrant or Street Washer.....	.40	.50
1714	Shoe for Hydrant or Street Washer.....	.10	.10
1715	Street Washer Stirrup.....	.50	.70
1716	“ Plate.....	.25	.30
1717-1	“ “ Lid only.....	.25	.30
1717-2	“ “ Top “.....	1.50	.75
1718	Bottom Complete for Hydrant or Street Washer.....	1.35	1.70
1719	Street Washer Keys..... per dozen	.50	1.50
1720	“ Screws..... each	.30	.30
1721	Stirrup and Tee for Self-closing Hydrant.....	.60	....
1722	Lever for Self-closing Hydrant.....	.50	....
1723	Top “ “ “ “.....	.50	....
1724	Spring “ “ “ “ (not illustrated).....	.50	....
1725	Packing Nut for Hydrant or Street Washer.....	.15	.15
1726	Clamp “ “ “ “.....	.15	.15
1727	Angle Plate for Street Washer.....	.10	.10
....	Valve Packing, consisting of Cup Leather, Washer and Seat Leather..... per doz. sets	1.50	2.00



## WILLIAMS' PIPE THREADING MACHINES

No. 1

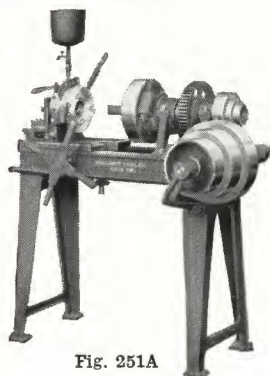


Fig. 251A

No. 1½

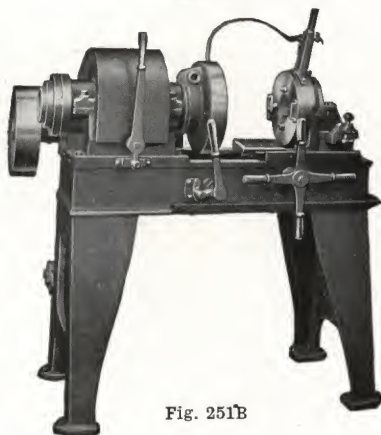


Fig. 251B

Nos. 2 AND 3

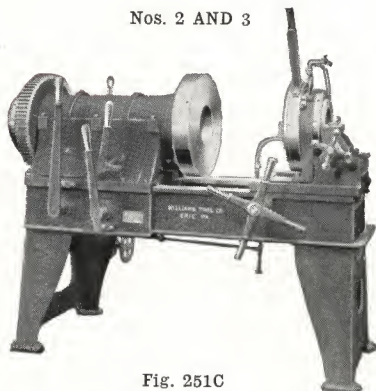


Fig. 251C

The die head is on a sliding carriage, is strong, compact and convenient. The dies are adjustable and interchangeable; a cam lever adjusts and expands the dies. A quick-operating, self-centering scroll chuck is fitted to the back side of the die head to steady pipe in cutting off. The four guides are made of tool steel and hardened very hard their entire length.

The dies are made of tool steel to secure best cutting and lasting qualities. One set cuts two sizes of pipe, thus reducing the die investment one half, as well as the time for changing dies, as compared with a machine requiring a separate set of dies for each size of pipe. The dies are easily resharpened and when too badly

worn can be recut at a small cost, thus reducing practically the only repair expense of the machine to a minimum. Orders for bolt dies should state whether for V or U. S. threads, and for casing dies the inside diameter and number of threads to the inch should be given.

No.	Capacity of Pipe Inches	Weight Pounds	Price with R. H. Dies Each	Price Extra Dies R. and L. Hand per Set	Price Oil Pump Extra Each	Price Cutting- off Knife Each	Price Nipple Holder Each
1	¼ to 2	1000	132.50	2.50	15.00	.50	25.00
1½	½ " 3	1500	343.75	3.50	....	.50	30.00
2	1 " 4	2200	500.00	4.00	....	.50	50.00
3	1½ " 6	3000	625.00	5.00	....	.65	70.00

## WILLIAMS' PIPE THREADING MACHINES

NOS. 4 AND 5

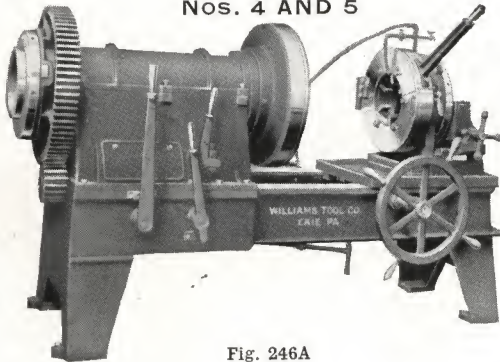


Fig. 246A

The price includes countershaft, cutting-off attachment extra cutting-off knife, and right-hand dies. The same general features described in the smaller machines are here incorporated in the Nos. 4 and 5 also.

No.	Capacity of Pipe Inches	Weight Pounds	Price with R. H. Die Each	Price Extra Dies R. and L. Hand per Set	Price Cutting- off Knife Each	Price Nipple Holder Each
4	2½ to 8	5500	937.50	7.00	.75	100.00
5	3½ " 12	9000	1500.00	12.00	.75	160.00

## ELECTRIC-DRIVEN

No. 3

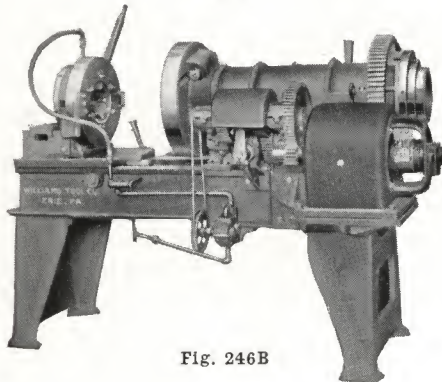


Fig. 246B

Any of the Williams' Pipe Cutting Machines can be direct-connected, as shown in above illustration. The dies on all the machines are quick-opening and adjustable, and expand to permit pipe to be taken from machine or cut off instead of backing off.

The gripping chucks on Nos. 1, 1½, 2, 3 and 4 machines are very powerful universal chucks. No. 5 has an independent chuck unless a universal is preferred.



# FORBES PIPE CUTTING AND THREADING MACHINES WITH OPENING AND ADJUSTABLE DIES

FOR HAND, No. 56

FOR HAND OR POWER, No. 94

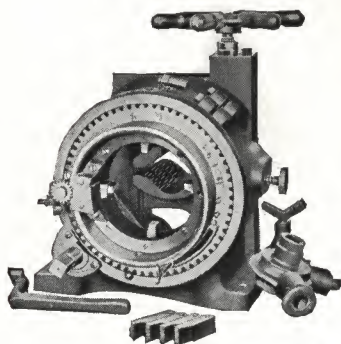


Fig. 7104A

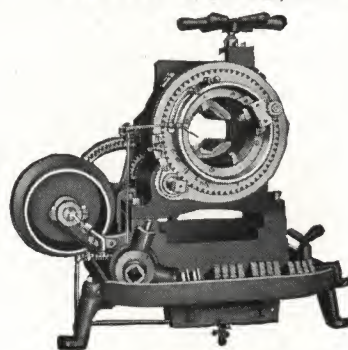


Fig. 7104B

HAND MACHINES				HAND OR POWER MACHINES			
Number	Threads Pipe, Inches	Approx. Net Wt., Lbs.	Price Each	Number	Threads Pipe, Inches	Approx. Net Wt., Lbs.	Price Each
*30	1/4 to 2, R. and L....	155	50.00	*70	1/4 to 2, R. and L....	376	100.00
*32	For Solid Dies, 1/4 to 2, Dies not Furnished..	140	45.00	*72	For Solid Dies, 1/4 to 2, Dies not Furnished..	352	95.00
*34	1 to 3, R. H., 1 to 2, L. H.....	185	75.00	*74	1 to 3, R. H., 1 to 2, L. H.....	491	125.00
*36	3/4 to 3, R. H., 3/4 to 2, L. H.....	190	85.00	*76	3/4 to 3, R. H., 3/4 to 2, L. H.....	484	135.00
*37	1/4 to 3, R. and L....	200	105.00	*77	1/4 to 3, R. and L....	490	155.00
*38	1 1/2 " 4, R. H.....	251	100.00	*78	2 1/2 " 4, R. H.....	652	140.00
*40	1 1/2 " 4, R. and L....	257	115.00	*80	1 1/2 " 4, R. H.....	644	150.00
*42	1 " 4, R. H.....	253	110.00	*82	1 1/2 " 4, R. and L....	665	165.00
*44	1 " 4, R. and L....	260	130.00	*84	1 " 4, R. H.....	641	160.00
†46	2 1/2 " 4, R. H.....	237	85.00	*86	1 " 4, R. and L....	648	180.00
†50	4 " 6, R. H.....	341	115.00	†88	4 " 6, R. H.....	758	170.00
†52	3 1/2 " 6, R. H.....	341	130.00	†90	3 1/2 " 6, R. H.....	802	180.00
†54	2 1/2 " 5, R. H.....	343	150.00	†92	2 1/2 " 5, R. H.....	810	200.00
†56	2 1/2 " 6, R. H.....	345	175.00	†94	2 1/2 " 6, R. H.....	800	225.00
*58	1 " 6, R. H.....	384	190.00	*95	2 1/2 " 6, R. and L....	818	255.00
*60	1 " 6, R. and L....	404	235.00	*96	1 " 6, R. H.....	860	250.00
*61	2 1/2 " 6, R. and L....	398	205.00	*98	1 " 6, R. and L....	881	285.00
†62	2 1/2 " 6, Ex. Hy.....	815	300.00	*98 1/2	1 " 8, R. H.....	1359	535.00
*63	2 1/2 " 8, R. and L....	661	360.00	*99	2 1/2 " 8, R. and L....	1326	535.00
†64	2 1/2 " 8, R. H.....	673	325.00	*99 1/2	1 " 8, R. and L....	1370	570.00
*65	1 " 8, R. H.....	671	360.00	†100	2 1/2 " 8, R. H.....	1500	500.00
*65 1/2	1 " 8, R. and L....	660	395.00	†102	2 1/2 " 10, R. H.....	2025	700.00
†66	2 1/2 " 10, R. H.....	989	500.00	*104	2 1/2 " 10, R. H.....	2150	700.00
*67	2 1/2 " 10, R. H.....	995	500.00	*106	2 1/2 " 10, R. and L....	2200	750.00
*68	2 1/2 " 10, R. and L....	1025	550.00	†107	2 1/2 " 12, R. H.....	3725	900.00
†69	2 1/2 " 12, R. H.....	2293	650.00	*108	2 1/2 " 12, R. and L....	4156	1000.00
*69 1/2	2 1/2 " 12, R. and L....	2525	750.00	*120	4 " 15, R. H.....	5990	1500.00

\*Pressure feed machines. †Lead screw machines.

Numbers 30 to 37 and 70 to 77 have no cut-off attachment, unless specially ordered.

The prices of hand or power machines include countershaft, ratchet wrench and pipe rest.



## FORBES PIPE CUTTING AND THREADING MACHINES

### DIRECT-CONNECTED, MOTOR-DRIVEN

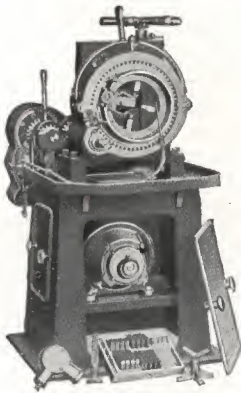


Fig. 6792A

The economical and convenient methods of transmitting power by direct-connected motor machines, saving the necessary loss in friction which accompanies transmission by belting and shafting, has been applied to the Forbes Pipe Cutting and Threading Machines.

The compact cabinet base requires no more room than a bench machine. The motor is concealed within the base, protecting it from the oil or chips, also from breakage resulting from dropping heavy lengths of pipe and fittings. No outside bearings to be lined up.

The machine can be moved from place to place, and it is but necessary to attach the feed wires, turn on the switch, and it is ready for use. When not in use, you are not paying for wasted power. No belting or countershaft being used, a trolley over the machine for handling heavy lengths of pipe can be used to good advantage.

The machine has triple compound spur gears, cut from solid castings and entirely protected. Various speeds can be obtained, or the machine can be started or stopped by simply throwing a lever, while the motor is allowed to run.

The oil pump is driven by gears, is out of the way of the operator, and direct-connected. The strainer in the center of the pan separates the oil from the chips, and enables you to use it over again until unfit for use.

The machine is equipped with a specially designed die head, which does away with all thumbscrews for adjusting the dies, which are now clamped with one movement of a lever. The machine also has a self-centering device.

The machine has dies that are opening and adjustable to any variations of fittings, and adjustable shell for taking up wear, which greatly prolongs the life of the machine. All sizes above 3 inches are furnished with automatically fed blade cut-off attachment, which cuts off pipe absolutely square and leaves no burr, thus avoiding the necessity of reaming the pipe. This attachment can be added to smaller sizes, if ordered, at an additional expense of 10.00.

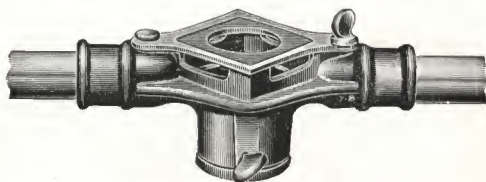
Adjustable pipe rest, mounted on iron column, on which to rest the pipe, is furnished with each machine.

No.	Range Inches	Price Each	Price to Convert Hand Machine into Electric	No.	Range Inches	Price Each	Price to Convert Hand Machine into Electric
*230	1/4 to 2, R. & L. H.	315.00	280.00	252	3 1/2 to 6, R. H.	435.00	325.00
*234	1/8, R. H.; 1/2, L. H.	340.00	280.00	254	2 1/2 " 5, "	435.00	325.00
*236	3/4 to 3, R. H.; 3/4 to 2, L. H.	350.00	280.00	256	2 1/2 " 6, "	460.00	325.00
*237	1/4 to 3, R. & L. H.	370.00	280.00	*258	1 " 6, "	475.00	325.00
*238	1 1/2 to 4, R. H.	365.00	285.00	*260	1 " 6, R. & L. H.	520.00	325.00
*240	1 1/2 to 4, R. & L. H.	380.00	280.00	264	2 1/2 " 8, R. H.	700.00	450.00
*242	1 to 4, R. H.	375.00	280.00	*265	1 " 8, "	725.00	450.00
*244	1 to 4, R. & L. H.	395.00	280.00	*267	2 1/2 " 10, "	900.00	500.00
246	2 1/2 to 4, R. H.	360.00	285.00	269	2 1/2 " 12, "	1200.00	600.00
250	4 to 6, R. H.	425.00	325.00	....	.....	.....	.....

\*Pressure feed machines. Balance, lead screw machines.  
Machines for single-phase current on application.

## PIPE STOCKS AND DIES

## MALLEABLE STOCKS AND DIES



WITH LEADER SCREW

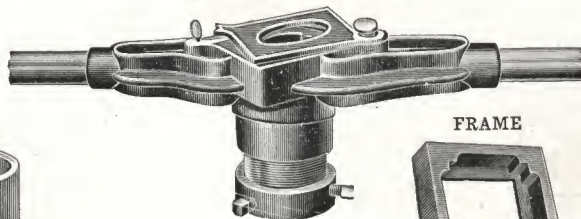
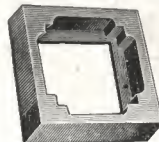


Fig. 3395A

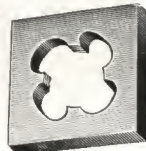
BUSHING



FRAME



DIE



No.	Threads Pipe Inches	Dimensions of Dies Inches	PRICE, EACH				
			Complete	Stocks only	Extra Dies	Extra Bushings	Extra Die Frames
0	$\frac{1}{8}$ to $\frac{1}{2}$	2 x $\frac{1}{2}$	9.50	3.50	1.50	.25	....
1	$\frac{1}{4}$ " 1	$2\frac{1}{2}$ x $\frac{3}{4}$	15.00	5.00	2.00	.35	.30
$1\frac{1}{2}$	$\frac{3}{4}$ " $1\frac{1}{4}$	3 x $\frac{3}{4}$	13.50	6.00	2.50	.45	.40
$1\frac{3}{4}$	1 " $1\frac{1}{2}$	3 x $\frac{3}{4}$	13.50	6.00	2.50	.45	.40
2	$1\frac{1}{4}$ " 2	4 x $\frac{7}{8}$	20.00	9.50	3.50	.60	.50
3	$2\frac{1}{2}$ " 3	5 x $1\frac{1}{4}$	43.00	25.00	9.00	1.00	.60
4	$2\frac{1}{2}$ " 3	5 x $1\frac{1}{4}$	51.00	33.00	9.00	1.00	.60

Nos. 2, 3, 4 have leader screw attachment. No. 4 has four arms.

## MILLER'S REVERSIBLE RATCHET STOCKS



Fig. 3395B

Size	Threads Pipe Inches	Dimensions of Dies Inches	PRICE, EACH				
			Complete	Stocks only	Extra Dies	Extra Bushings	Extra Die Frames
B	$\frac{1}{4}$ to 1	$2\frac{1}{2}$ x $\frac{3}{4}$	15.00	7.50	1.50	.25	.22
C	1 " $1\frac{1}{2}$	3 x $\frac{3}{4}$	18.50	13.00	1.80	.35	.30
D	$1\frac{1}{4}$ " 2	4 x $\frac{7}{8}$	20.00	12.50	2.50	.45	.38
E	$2\frac{1}{2}$ and 3	5 x $1\frac{1}{4}$	44.50	29.00	7.75	.85	.45

Sizes C, D and E have leader screws.



**BEAVER PIPE STOCKS AND DIES**

No. 25

**ADJUSTABLE**

No. 26 RATCHET

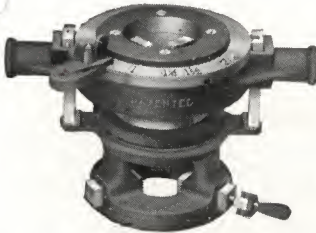


Fig. 4489A

No. 41 RATCHET

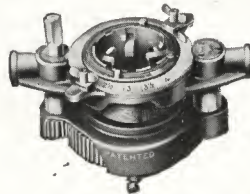


Fig. 4489B

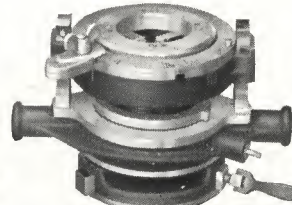


Fig. 4489C

No. 80 RATCHET

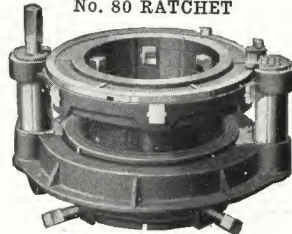


Fig. 4489F

No. 61 RATCHET



Fig. 4489D

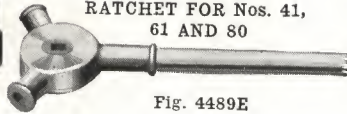
**RATCHET FOR Nos. 41,  
61 AND 80**

Fig. 4489E

Number.....	25	26	41	61	80
Threads Pipe .....	1 to 2	1 to 2	2½ to 4	2½ to 6	4½ to 8
Price .....	30 00	35 00	110 00	220 00	300 00
" Extra Dies.....per single set	3 50	3 50	9 00	14 00	20 00

Have easy working narrow receding dies and are adjustable. Nos. 25, 26 and 41 thread all sizes with one set of dies—no changing; No. 61 uses two sets, (2½, 3, 3½) and (4, 4½, 5, 6); No. 80, two sets, (4½, 5, 6) and (7, 8). Nos. 25 and 26 have universal chucks; Nos. 41, 61 and 80 use bushings. No. 41 has five chasers; Nos. 61 and 80 have six chasers.

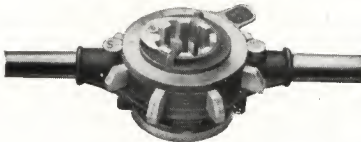
**No. 6 BEAVERETTE****WARREN**

Fig. 4489G

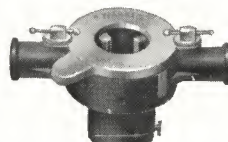


Fig. 4489H

**No. 6 BEAVERETTE DIE STOCKS**

Threads Pipe .....	inches	¼, ⅜, ½, ¾
Price .....	each	15 00
" Extra Dies, Right or Left, ⅛, ¼ and ⅜, or ½ and ¾-inch. ....	per single set	3 00

Two sets of wide non-receding chaser dies ¼ to ¾-inch, to cover the two thread pitches, are held in the stock and operated by a single cam. Provided with a cam centering device. No changing and are adjustable.

**WARREN DIE STOCKS**

The Warren Stocks have wide non-receding chaser dies and thread two sizes of pipe without changing dies; are adjustable and have bushings for each size pipe.

Number.....	120	121	122	123
Threads Pipe .....	inches	1½, ¾	1, 1¼	1½, 2
Price .....	each	6 50	7 00	8 00
" Extra Dies, Right or Left.....	per set	1 50	1 60	2 00
			2 00	2 50



## ARMSTRONG ADJUSTABLE PIPE STOCKS AND DIES

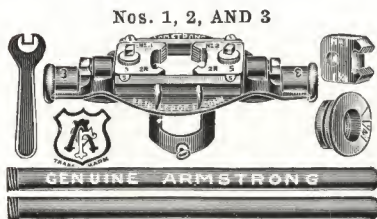


Fig. 8327A

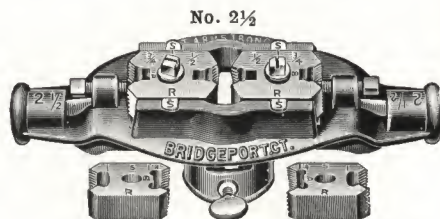


Fig. 8327B

### No. 1

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
1	1/8 to 1/2	9.00	14.00	4	8	1.25	.20	3.25

Unless otherwise specified, this set is furnished 1/8 to 1/2-inch, right-hand.

### No. 2

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
2	1/4 to 1	12.00	20.00	5	10	1.50	.25	4.00
2	1/8 " 1	14.00	23.00	6	12	1.50	.25	4.00

Unless otherwise specified, this set is furnished 1/4 to 1-inch, right-hand.

### No. 2½

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
2½	1/2 to 1¼	12.00	18.00	*2	4	3.25	.40	4.50
2½	1/4 " 1¼	18.00	23.00	†4	8	**3.25	.40	4.50

\*Two sets double-end dies, 1/2x3/4 and 1x1¼-inch. †Two sets double-end dies, 1½x¾ and 1x1¼-inch, and two sets single-end dies, 1/4 and 3/8-inch. \*\*Is list of double-end dies. Sizes, 1/4 or 3/8-inch, single-end, 2.50 per set.

Unless otherwise ordered, this set is furnished 1/2 to 1¼-inch, right-hand.

### No. 3

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
3	1¼ to 2	20.00	32.00	3	6	4.00	.50	7.00
3	1 " 2	24.00	40.00	4	8	4.00	.50	7.00
3	¾ " 2	28.50	48.50	5	10	4.00	.50	7.00
3	1½ " 2	33.00	57.00	6	12	4.00	.50	7.00

Unless otherwise ordered, this set is furnished 1 to 2-inch, right-hand.

## ARMSTRONG ADJUSTABLE PIPE STOCKS AND DIES

No. 6

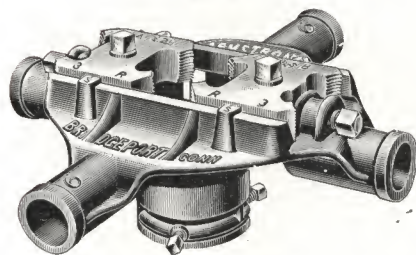


Fig. 8336A

No. 7

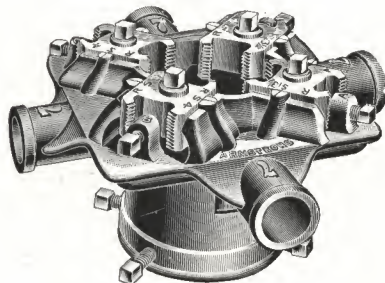


Fig. 8336B

No. 6

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
6	2½ and 3	40.00	55.00	*1	2	15.00	1.00	25.00

\*Double-end. The change from 2½ to 3-inch is made by simply reversing the dies end for end.

Unless otherwise ordered, this set is furnished 2½ and 3-inch, right-hand.

No. 7

No.	Threads Pipe Inches	PRICE, COMPLETE EACH		Number of Sets of Dies Right- Hand	Number of Sets of Dies Right and Left-Hand	Price Extra Dies Right or Left-Hand per Set	Price Extra Bushings Each	Price, Stocks with Screws, Handles and Wrench only Each
		Right- Hand	Right and Left-Hand					
7	2½ to 4	60.00	92.00	*2	4	16.00	1.50	30.00
7	2½ and 3	45.00	60.00	1	2	16.00	1.50	30.00
7	3½ " 4	45.00	60.00	1	2	16.00	1.50	30.00

\*These dies are double-end and come in sets of four pieces. One set is threaded for 2½-inch on one end and 3-inch on the opposite end, and one set is threaded for 3½-inch on one end and 4-inch on the other end.

Sent 2½ to 4 inch, right hand, unless otherwise ordered.

### RATCHET ATTACHMENT

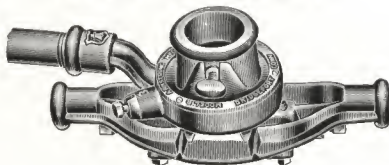


Fig. 8336C

Can be used either right or left by reversing pawl without removing from stock. With this attachment any Armstrong Stock becomes a ratchet stock and die.

For Stock.....	No.	2	2½	3	6	7
Price.....	each	2.50	3.00	3.50	5.00	5.00



## OSTER BULLDOG DIE STOCKS

REGULAR STOCK

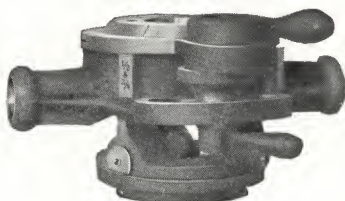


Fig. 6934A

RATCHET STOCK

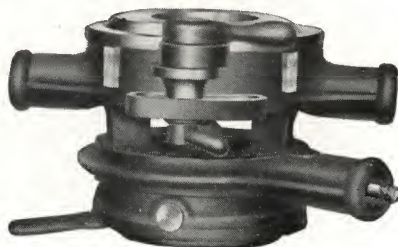


Fig. 6934B

This line of stocks has a positive setting arrangement without the use of any thumb-screws or friction clamps of any kind. The dies are controlled by the lever handle on top, as shown in illustration. By moving this handle to the right as far as it will go, the dies are set and held in place while cutting. One movement of the top lever handle will open or close the dies. No resetting or backing off the threads.

The tool is equipped with adjustable guides which do away with loose bushings. These guides are operated on a scroll and can be set for all sizes the tool will thread. The scroll is constructed so that the guides are held in any position without locking. The more pressure on the ends of the guides, the more solid the locking arrangement. Great pressure on the ends of the guides only tends to lock them more firmly in position.

RANGE OF SIZES OF PIPE, INCHES				REGULAR STOCKS		RATCHET STOCKS		Extra Dies per Set (4 Pieces)
One Set	One Set	One Set	One Set	No.	Price Each	No.	Price Each	
$\frac{1}{8}$	$\frac{1}{4}$ and $\frac{3}{8}$	$\frac{1}{2}$ and $\frac{3}{4}$	$1\frac{1}{2}$ and $1\frac{3}{4}$	101	13.00	.....	.....	1.50
$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$1\frac{1}{4}$	102	17.00	102R	20.00	1.75
$1\frac{1}{2}$	$1\frac{1}{4}$	2	.....	103	22.00	103R	27.00	2.00
$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$ and 2	104	25.00	104R	30.00	2.00
$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$1\frac{1}{4}$	104 $\frac{1}{2}$	28.00	.....	.....	2.00
$1\frac{1}{2}$	2	$2\frac{1}{2}$	.....	105	40.00	105R	50.00	3.00
1	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$ and 3	105 $\frac{1}{2}$	43.00	105 $\frac{1}{2}$ R	53.00	3.00
$2\frac{1}{2}$	3	$3\frac{1}{2}$	.....	107	55.00	107R	60.00	3.50
$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{2}$ and 4	107 $\frac{1}{2}$	58.50	107 $\frac{1}{2}$ R	63.50	3.50
$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{2}$ " 4	.....	.....	108R	75.00	5.00
$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{2}$ " 4	.....	.....	108 $\frac{1}{2}$ R	80.00	5.00

### BULLDOG DIE STOCKS, No. 82

This tool has brand new features. The double-end dies ( $\frac{1}{4}$  and  $\frac{3}{8}$ -inch on one end— $\frac{1}{2}$  and  $\frac{3}{4}$ -inch on the other) are protected by a casing; hence teeth cannot cut user's hands or be damaged when stock is thrown about.

The dies have a stop on each side so that they cannot be set beyond proper place in stock.

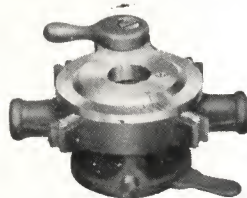


Fig. 6934C

Price, Complete, Cutting $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ and $\frac{3}{4}$ inch	..... each	13.00
" Extra Dies, Right or Left	..... per set (four pieces)	3.00
" " for $\frac{1}{8}$ -inch Dies	..... " " "	2.00



## OSTER DIE STOCKS AND PIPE MACHINES

### MATCHLESS DIE STOCKS

Receding dies. No loose bushings. No change of guides. Easy cutting dies. Protected leader screw.

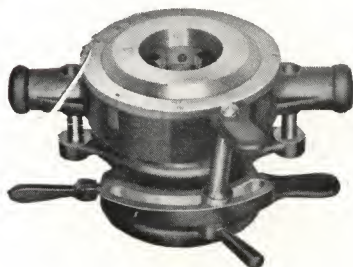


Fig. 6955A

Number .....	1B	3B	*3B R	*4B R
Threads Pipe.....inches	$\frac{1}{2}$ & $\frac{3}{4}$	1 to 2	1 to 2	$2\frac{1}{2}$ to 4
Weight.....pounds	11	20	26	120
Price, Complete...each	16.00	30.00	35.00	80.00
" Extra Dies...per set	1.50	2.00	2.00	5.00

\*Ratchet.

### LIGHT-HAND MACHINES

With adjustable centering chuck. These are portable pipe tools. Can be used as a die stock, as a bench tool, or complete with tripod stand. Strictly a one-man outfit.

These tools have no leader screw; the dies are started with a lever handle. One movement of the lever brings the head to position for the next cut without backing over the finished threads. No pipe vise required.

Number .....	16	17
Threads Pipe.....inches	$2\frac{1}{2}$ to 4	$2\frac{1}{2}$ to 6
Shipping Weight, with Bracket...pounds	290	420
" " Tripod... "	370	530
Sets of Dies.....	1	4
Price, with Bench Bracket... each	110.00	185.00
" " Tripod..... "	125.00	200.00
" Extra Dies....per set of four pieces	4.00	5.00

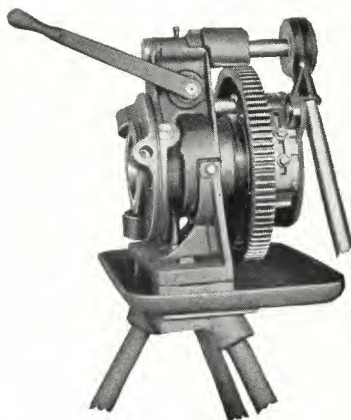


Fig. 6955B

Nos. 204 AND 206

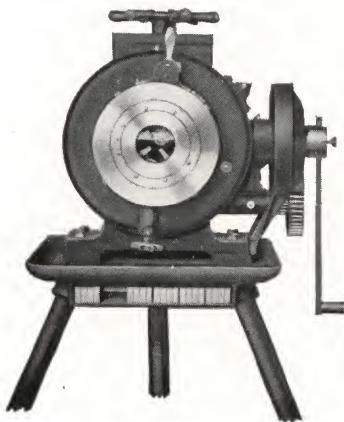


Fig. 6955C

### HAND MACHINES

The dies in these machines are self-locking with one movement of the setting handle. Throw it one way and the pipe is released; throw it the other way and the dies are set to same size. The dies thread two sizes without change. Vise is self-centering and straight threads are assured. Gears are all machine cut and entirely protected from chips or accidents.

Number .....	*201	204	206
Threads and Cuts off Pipe.....inches	$\frac{1}{4}$ to 2	1 to 4	1 to 6
Sets of Dies.....	4	4	6
Price, with Tripod and Pan..... each	70.00	150.00	250.00
Deduct for Tripod .....	7.00	10.00	25.00
" " Oil Pan .....	3.00	4.00	6.00
Extra Dies, R. or L., per set of four pieces	3.00	4.00	5.00

\*No. 201 does not have a cutting-off attachment,

## TOLEDO ADJUSTABLE PIPE THREADING DEVICES

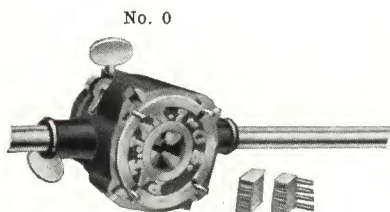


Fig. 5714A

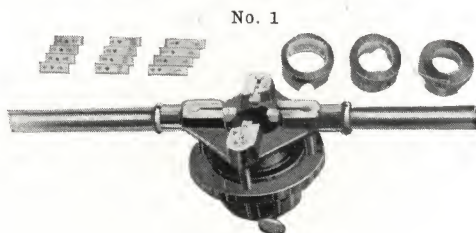


Fig. 5714B

No. 0 is a popular little tool. It cuts  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch threads with one set of dies;  $\frac{1}{4}$  and  $\frac{3}{8}$ -inch threads with another set, and  $\frac{1}{8}$ -inch threads with another set. It differs from other tools of the same capacity in that it uses the receding-die principle for threading  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch pipe, thus making it an easy operating tool. It is very light and compact, being only 24 inches long from tip to tip of the handles.

No. 1 is, and has been for a number of years, a very popular threading device. It threads 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$  and 2-inch pipe. It is perfectly easy for one man to cut 2-inch threads with same. It is made both as a right-hand and a left-hand tool—neither will do both. Right-hand furnished unless otherwise specified.

### WITH RATCHET

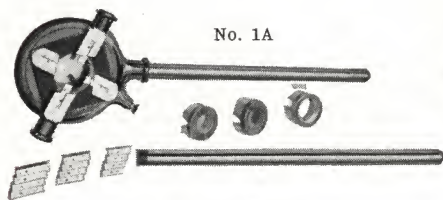


Fig. 5714C

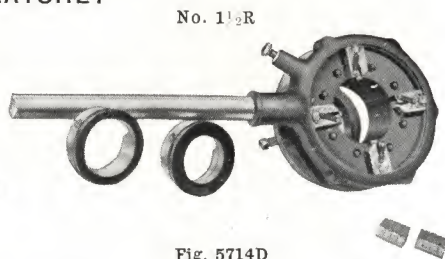


Fig. 5714D

No. 1A is in every essential like the No. 1, except that it is equipped with a ratchet. It may be used with two handles as an ordinary die stock, or with one handle inserted in the ratchet case. It is desirable for threading pipe down a trench, or against walls, between rafters, etc. It is an easy operating tool. It is made both as a right-hand and a left-hand tool—neither will do both. Right-hand furnished unless otherwise specified.

No.  $1\frac{1}{2}R$  is offered for those who do not require to thread pipe larger than 3-inch, and who do not want to invest as much money as the Toledo No. 2 costs. Its capacity is limited to two sizes of standard pipe, viz.,  $2\frac{1}{2}$  and 3-inch of 8 thread. It is direct-acting and, therefore, does not operate as easily as the No. 2 tool, which is geared. Nevertheless, the man who has only been accustomed to the older wide-die tools may be astonished at the ease with which this tool will thread pipe. Can also be furnished with a capacity of 2,  $2\frac{1}{2}$  and 3-inch threads, of  $11\frac{1}{2}$  thread for drive well pipe, when so ordered, at same price.

Number	0	1	1A	$1\frac{1}{2}R$
Threads Pipe.....inches	$\frac{1}{8}$ to $\frac{3}{4}$	1 to 2	1 to 2	$2\frac{1}{2}$ , 3
Number of Sets of Dies to Stock	3	4	4	<sup>*2</sup> 2
Price, Complete	16.00	24.00	30.00	50.00
" Dies, per Set of Four Segments	2.50	2.50	2.50	4.00

\*For 8-thread tool. When furnished  $11\frac{1}{2}$ -thread there are three sets.



## TOLEDO GEARED ADJUSTABLE PIPE THREADING DEVICES

### No. 2

This tool is light, compact and very easy in operation. It can be operated without great effort. Neither is the ease of operation obtained at the expense of speed.

The factory claims that a 4-inch thread may be completed in 10 minutes without undue effort, and that a 4-inch thread has been cut in 6 minutes.

Complete with dies, ratchet and driving cross.

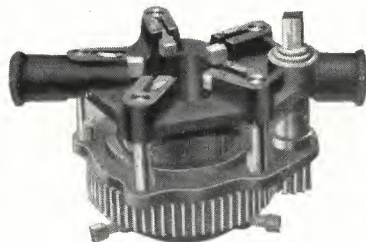


Fig. 6049A

### No. 3

The factory also claims that one man can readily cut an 8-inch thread with the No. 3 machine, and the ease of operation is not obtained at the expense of speed.

Its net weight is 155 pounds. With clearance in other directions it may be operated on a pipe, the center of which is within 10 inches of a wall or other obstruction.

It is light, compact and easy in operation. Complete with dies, ratchet and driving cross.

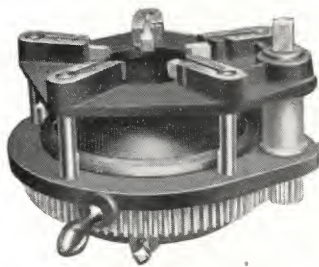


Fig. 6049B

### No. 4

This tool will be appreciated by the engineers of large power plants, superintendents of pipe lines, and in all fields where it is desirable and necessary occasionally to cut threads on large size pipe.

It may be put on a pipe in a line, or well, any place, in fact, and the work easily accomplished.

It takes two men to put the tool on the pipe, but after it is on, one man can do the work of cutting the thread. Complete with dies, ratchet and driving cross.

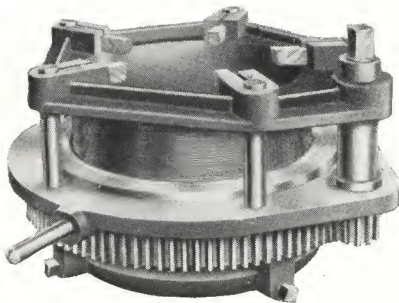


Fig. 6049C

Number.....	2	3	4
Threads Pipe .....	2½ to 4	4½ to 8	9, 10, 12
Net Weight .....	60	155	225
Number of Sets of Dies to Stock.....	4	5	3
Price, Complete .....	100.00	300.00	500.00
“ Extra Dies, per Set of Five Segments.....	8.00	12.00	20.00



## TOLEDO ADJUSTABLE PIPE THREADING DEVICES

### Nos. 10 AND 10A

No. 10

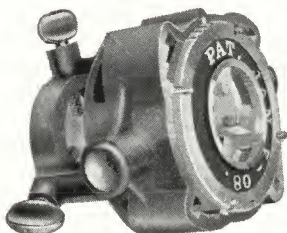


Fig. 5702A

The dies are easily and positively set for any given size. The same die-receding principle that has made the Toledo No. 1 model such a desirable tool, is utilized, and it threads pipe with very little effort.

The No. 10A is identical with the No. 10, except that it has a ratchet attachment.

No. 10A RATCHET

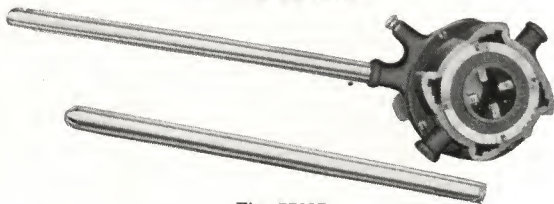


Fig. 5702B

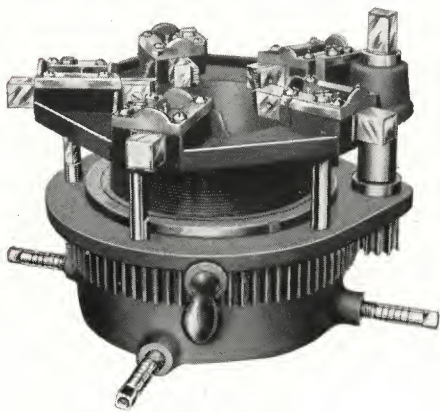


Fig. 5702C

No. 25

This model differs from other Toledo Tools of similar capacity in that it is constructed to utilize but one set of dies for threading the entire range of sizes (seven). The adjustment of the dies is not accomplished by the use of a cam plate, and the weakness of that form of construction has therefore been eliminated. Two sets of dies are furnished with this model so that when one set is dull and needs grinding, another set will be in hand to take its place.

Number .....	10	10A	25
Threads Pipe .....	1 to 2	1 to 2	2½ to 6
Net Weight .....	16½	22	125
Price .....	28.00	34.00	*230.00
“ Extra Dies .....	2.75	2.75	8.00

\*Complete, with dies, ratchet and driving cross.

## PUMP ROD STOCKS AND DIES, ETC.

## LITTLE GIANT PUMP ROD STOCKS AND DIES



Fig. 6423A

Price, No. 250 Double Stock, with Two Dies	$\frac{3}{8}$ " <sup>14</sup> and $\frac{7}{16}$ " <sup>12</sup>	each	3.35
" " 251 Single " " One Die	$\frac{3}{8}$ " <sup>14</sup>	"	1.80
" " 252 " " " " "	$\frac{7}{16}$ " <sup>12</sup>	"	1.85
" " 253 " " " " "	$\frac{1}{2}$ " <sup>12</sup>	"	2.20

## PARTS FOR PUMP ROD STOCKS

No. 250 Stock...each	.85	No. 253 Stock...each	.70	$\frac{1}{2}$ -inch Die...each	1.50
" 251 " " "	.55	$\frac{3}{8}$ -inch Die....	1.25	Guides.....	.20
" 252 " " "	.60	$\frac{7}{16}$ " " " "	1.25	Wedge for Double Stock "	.15

## LITTLE GIANT SPIRAL FLUTE BURRING REAMERS

No. 2



Fig. 6423B

No. 3



Fig. 6423C

No. 4



Fig. 6423D

Number	Total Length Inches	Length of Flute Inches	Size at Point Inches	Size at Large End Inches	Style of Shank	Capacity Pipe Inches	Price Each
1	3	1	$\frac{7}{32}$	$\frac{3}{4}$	Bit Brace	$\frac{1}{8}$ to $\frac{1}{2}$	1.00
2	$3\frac{13}{16}$	$1\frac{9}{16}$	$\frac{7}{16}$	$1\frac{9}{32}$	" "	$\frac{3}{8}$ " 1	1.25
$2\frac{1}{2}$	$4\frac{7}{16}$	$2\frac{3}{16}$	$\frac{5}{16}$	$1\frac{13}{32}$	" "	$\frac{1}{4}$ " $1\frac{1}{4}$	1.50
3	$3\frac{13}{16}$	$1\frac{9}{16}$	$\frac{7}{16}$	$1\frac{9}{32}$	$\frac{1}{2}$ Round	$\frac{3}{8}$ " 1	1.25
$3\frac{1}{2}$	$4\frac{7}{16}$	$2\frac{3}{16}$	$\frac{5}{16}$	$1\frac{13}{32}$	" "	$\frac{1}{4}$ " $1\frac{1}{4}$	1.50
4	$5\frac{1}{4}$	$2\frac{1}{2}$	$\frac{13}{16}$	$2\frac{9}{32}$	Bit Brace	1 " 2	3.00
5	$4\frac{1}{4}$	$2\frac{1}{2}$	$\frac{13}{16}$	$2\frac{9}{32}$	" Handle 20 in. long	1 " 2	3.50
6	$5\frac{3}{8}$	$3\frac{3}{16}$	$\frac{7}{16}$	$2\frac{9}{32}$	" " 20 " "	$\frac{1}{2}$ " 2	4.00

Please order by number.

The above are furnished with spiral flutes, which prevent chattering.

## MUELLER BIT BRACE PIPE END REAMERS

(Patented)

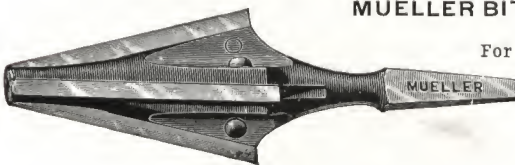
For  $1\frac{1}{4}$ -inch Pipe and Smaller

Fig. 6423E

Price, Complete.....each	2.50
" Frame only .... "	1.60
" Blades (Three).. "	.85
" Rivets " .. "	.05



## PIPE TAPS, REAMERS, ETC.

PIPE TAP

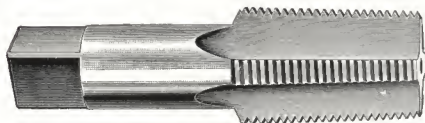


Fig. 3606A

PIPE REAMER



Fig. 3606B

Diameter.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Taps or Reamers .....each	1.12	1.25	1.50	1.87	2.50	3.12	3.75
Diameter.....inches	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	....
Price, Taps or Reamers .....each	4.62	6.25	10.50	15.00	22.00	33.00	....

COMBINED DRILL, REAMER AND TAP

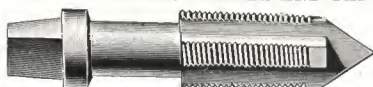


Fig. 3606C

FLAT DRILL



Fig. 3606D

COMBINED DRILL, REAMER AND TAP

Diameter.....inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price.....each	3.00	4.50	6.00	7.25	8.50	10.75

FLAT AND PIPE DRILLS

Size.....inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Price, Flat Drills .....each	.40	.40	.40	.40	.40	.45	.45	.45
" Pipe "....."	.65	.65	.70	.75	....	.80	....	.85
Size.....inches	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	3
Price, Flat Drills .....each	.50	.55	.60	.65	.75	.90	1.00	....
" Pipe "....."	....	.90	....	1.00	....	1.15	1.35	....

ADJUSTABLE TAP WRENCHES



Fig. 3606E

Length.....inches	$40\frac{1}{2}$	56	74
Holds Pipe Taps.....inches	$\frac{3}{8}$ to $1\frac{1}{4}$	1 to 2	2 to 4
Price.....each	7.00	15.00	25.00

MUELLER PIPE END REAMERS

PLAIN

(Patented)

WITH RATCHET

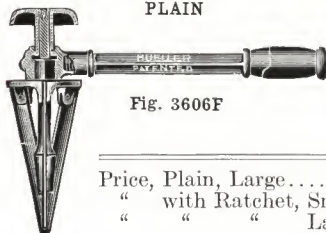


Fig. 3606F

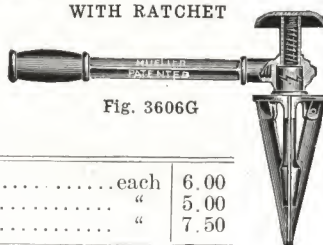


Fig. 3606G

Price, Plain, Large.....each	6.00
" with Ratchet, Small, $\frac{3}{8}$ to $1\frac{1}{4}$ ....."	5.00
" " " Large, $\frac{3}{8}$ to 3....."	7.50



## PLIERS

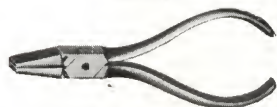
FLAT NOSE  
No. 642

Fig. 3019A

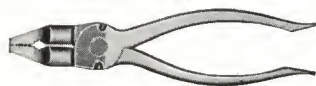
"UNIVERSAL"  
Nos. 700 AND 701

Fig. 3019B

## FLAT NOSE, No. 642

Size.....inches	4	5	6
Price.....per dozen	.85	1.00	1.45

## "UNIVERSAL"

Size.....inches	5½	6	7	8
Price, No. 700, Polished Jaws.....per dozen	4.50	5.50	6.50	7.50
" " 701, Full Polished....."	4.80	7.40	8.20	9.30

## COMBINATION

Gas Pliers, Wire Cutters, Wrench and Screwdriver Combined



Fig. 3019C



Fig. 3019D

Length.....inches	6	8	10	14
Price, Black.....per dozen	13.50	16.00	18.00	24.00
" Nickel-plated....."	15.00	18.00	21.00	30.00

## SIDE CUTTING



Fig. 3019E

## GAS



Fig. 3019F

## SIDE CUTTING, No. 16

Size.....inches	4	5	6
Price.....per dozen	2.40	2.80	3.30

## GAS

Size.....inches	5	6	7	8	9	10	11	12	13	14
Price, No. 325, Black..per doz.	...	...	...	12.00	14.00	15.00	16.00	18.00	21.00	24.00
" " 325, Finished.."	...	...	...	15.00	17.00	18.00	19.00	21.00	24.00	27.00
" " 326, Polished.."	8.00	9.00	...	...	...	...	...	...	...	...
" " 327, " " " "	...	...	10.00	...	...	...	...	...	...	...

## PIPE CUTTERS



Fig. 8397A



Fig. 8397B

## GENUINE BARNES

Best material used throughout. Cutter wheels drop-forged from high grade tool steel.

Number.....	1	2	3	4	5	6	6½	7
Cuts Pipe.....inches	⅛ to 1	½ to 2	1½ to 3	2½ to 4	4 to 6	6 to 8	8 to 10	9 to 12
Price.....each	4.50	6.00	10.00	20.00	30.00	40.00	45.00	50.00
“ Ex. Wheels.... “	.25	.30	.40	.50	.75	.75	.75	.75
“ “ Wheel Pins, per doz.	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00
“ “ Hooks...each	1.75	2.60	4.55	9.50	13.75	20.00	23.00	25.00
“ “ Slides... “	.75	1.00	2.00	4.50	7.00	8.50	9.50	11.25
“ “ Nuts.... “	.25	.25	*	*	*	*	*	*
“ “ Handles. “	1.00	1.25	2.25	4.50	7.00	9.25	10.25	11.50

\*Nut and hook in one piece in these sizes.

## SAUNDERS

All wearing surfaces are of the best tool steel and hardened, namely the rollers, pins and wheels.

Number.....	1	2	3	4	5
Cuts Pipe.....inches	⅛ to 1	1 to 2	2 to 3	2½ to 4	4 to 6
Price.....each	3.00	4.50	11.00	18.00	28.00
“ Extra Wheels..... “	.24	.32	.60	.60	.60
“ “ Block and Wheel.. “	1.25	1.75	2.75	3.50	4.00
“ “ Rollers..... “	.24	.32	.50	.50	.60
“ “ Pins..... “	.10	.10	.15	.15	.15

## "TRIMO"



Fig. 8397C

No thread in the frame or roll block to wear out. A small case-hardened nut adjusts the handle screw, and is easily and cheaply replaced when worn, making one of the most economical pipe cutters on the market. Converted into a three-wheel cutter by simply substituting two wheels for the two rolls.

Number.....	1	2	3
Cuts Pipe.....inches	⅛ to 1¼	½ to 2	1¼ to 3
Price.....each	4.50	6.00	10.00
“ Extra Wheels..... “	.30	.30	.40
“ “ Rolls..... “	.30	.30	.40
“ “ Nuts..... “	.35	.35	.40
“ “ Handle only..... “	.35	.35	.35

## BEAVER, SQUARE-END



Fig. 8397D

Leaves no burr to ream out, or file off, and makes a square pipe end on which threading dies start easier, last longer and run straight. Will not split the pipe.

Cuts Pipe.....inches	⅛ to 1	½ to 2	2½ to 4
Price, Complete.....each	18.00	20.00	90.00
“ Extra Knives.....per set	1.20	1.50	2.50

## PIPE CUTTERS AND CENTER FINDERS

### "VOSPER" PIPE CUTTERS

It cuts the pipe off true and with a straight edge, instead of pressing it apart, as does a wheel cutter. It is quick and positive. The cutting knives may be reground many times, thus making it possible to keep the tool in good working order with very little cost.

Full details upon application.



Fig. 6606A

Cuts Pipe.....	inches	$\frac{1}{2}$ to 2
Price.....	each	16.00

### NO. 250 TOLEDO RATCHET PIPE CUTTERS

The Toledo Pipe Cutter is adapted for cutting pipe from  $2\frac{1}{2}$  to 6 inches in diameter. We offer the Toledo, a machine for hand operation that will readily cut off pipe. It is a very compact machine, taking up but little space on the pipe.

The cutting is done by four knives which are automatically fed by star feed. Two of these knives are beveled across the cutting edge and cut a "V" shaped groove on the pipe; the other two knives are square and follow in the "V" shaped cut, making a square cut.

This cutter is especially adapted for cutting extra heavy and hydraulic pipe. It will cut a section from end of pipe as short as  $\frac{1}{16}$  of an inch.

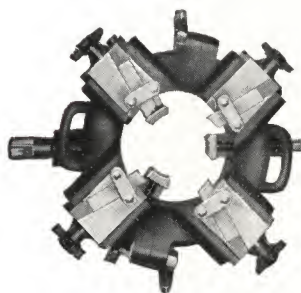


Fig. 6606B

Price, Cutting $2\frac{1}{2}$ to 6-inch Pipe.....	each	80.00
Price is for complete cutter with ratchet handle.		

### TOLEDO CENTER FINDERS

The Toledo Center Finder is a device for making that square more efficient. It will readily determine the center measurement of all such fittings as elbows, tees, crosses (straight and reducing sizes, screwed or flanged) and covers a range of sizes from 1 to 6 inches.

It is a device that the trades have for a long time been in need of, and will be found to be of value in all places where pipe fittings are used. The device is simple yet efficient. It is made from a fine quality of steel, the faces being ground true, and is so manufactured that it may be used on any steel carpenter's square with accurate results.

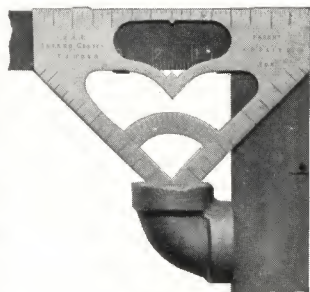


Fig. 6606C

Price.....	each	1.00
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## PIPE WRENCHES

## "TRIMO"

STEEL HANDLE



Fig. 9007A

JAW



Fig. 9007C

FRAME



Fig. 9007D

WOOD HANDLE



Fig. 9007B

INSERTED  
JAW

Fig. 9007E

NUT



Fig. 9007F

NUT WITH  
GUARDS  
INSERTED

Fig. 9007G

SPRING  
AND PIN

Fig. 9007H

Length, Open.....inches	6	8	10	14	18	24	36	48
Takes Pipe .....inches	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{2}$ to $3\frac{1}{2}$	1 to 5
Price, Wrench .....each	2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
" Movable Jaws. ...."	.75	.75	.80	1.00	1.33	2.10	4.75	7.25
" Inserted ....."	.35	.35	.45	.55	.65	.75	1.05	1.35
" Frames ....."	.35	.35	.40	.50	.55	.80	1.30	1.50
" Nuts ....."	.11	.11	.14	.17	.22	.35	.55	.95
" Springs ....."	.03	.03	.03	.03	.04	.04	.04	.04
" Frame Pins...."	.03	.03	.04	.04	.04	.04	.05	.05
" Jaw Pins....."	.03	.03	.04	.04	.04	.04	.05	.05
Weight, Wrench, each...pounds	$\frac{7}{16}$	$\frac{3}{4}$	$1\frac{1}{2}$	3	5	$8\frac{1}{2}$	$16\frac{3}{4}$	24

"Trimo" Narrow Jaw Wrench with wood handle made in 6, 8 and 10-inch sizes only.

## STILLSON

WRENCH

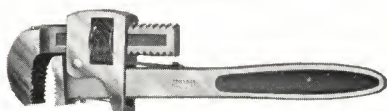


Fig. 9007J

JAW



Fig. 9007K

FRAME



Fig. 9007L

Solid steel bar handle and lower jaw—no pin to come loose or strip. All parts interchangeable. Made with wood handle in 6 to 14-inch sizes, but 10-inch and larger wrenches will be sent with steel handle unless otherwise specified.

HANDLE



Fig. 9007M

NUT



Fig. 9007N

Length, Open.....inches	6	8	10	14	18	24	36	48
Takes Pipe .....inches	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{4}$ to $3\frac{1}{2}$	1 to 5
Price, Wrench .....each	2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
" Jaws ....."	.75	.75	.80	1.00	1.33	2.10	4.75	7.25
" Frames ....."	.35	.35	.40	.50	.55	.80	1.30	1.50
" Adjusting Nuts ...."	.15	.15	.20	.20	.22	.35	.55	.95
" Wood Handles. ...."	.16	.16	.18	.25	.25	....	....	....
" End Nuts. ...."	.15	.15	.20	.20	.20	....	....	....
" Frame Pins...."	.03	.03	.04	.04	.04	.04	.05	.05
" Spring Rivets. ...."	.01	.01	.02	.02	.02	.02	.02	.02
" Springs....."	.10	.10	.10	.10	.10	.11	.13	.13
No. of Springs to each Wrench....	1	1	3	3	3	3	1	1

## WRENCHES

### ALLIGATOR WRENCHES

No. 1

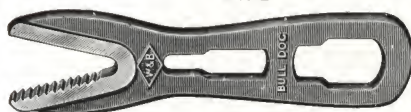


Fig. 7503A

Nos. 2, 3 AND 4



Fig. 7503B

Number .....	Pocket	No. 1	No. 2	No. 3	No. 4	No. 5	Twin
Length .....inches	4	5 $\frac{3}{4}$	9	16	22	27	10
Holds Pipe.... "	$\frac{1}{8}$ to $\frac{1}{4}$	$\frac{1}{8}$ to $\frac{3}{8}$	$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to 2	2 to 3	$\frac{1}{8}$ to $\frac{3}{4}$
" Round Iron. "	$\frac{1}{4}$ " $\frac{9}{16}$	$\frac{1}{4}$ " $\frac{3}{4}$	$\frac{1}{2}$ " 1	$\frac{3}{4}$ " $1\frac{3}{8}$	$1\frac{1}{2}$ " $2\frac{1}{2}$	$2\frac{1}{4}$ " $3\frac{1}{2}$	$\frac{1}{4}$ " 1
Price.....per dozen	3.00	4.00	12.00	24.00	36.00	60.00	18.00

### COES' "KNIFE-HANDLE" WRENCHES



Fig. 7503C

Size .....inches	6	8	10	12	15	18	21
Price, Black.....per dozen	9.00	10.00	12.00	14.00	24.00	30.00	36.00
" Bright ..... "	11.50	12.50	15.00	19.00	30.00	36.00	42.00

### WARNOCK SINGLE STRAP VISE

#### WARNOCK PIPE WRENCH



Fig. 7503D

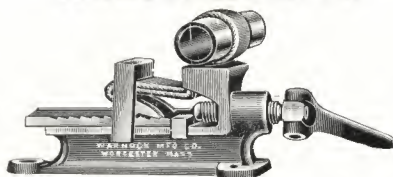


Fig. 7503E

### WARNOCK PIPE WRENCHES

Length.....inches	12	18
Takes Pipe.....inches	$\frac{1}{8}$ to 2	1 to 5
Price, Complete.....each	1.50	2.50
" Extra Straps....."	.25	.50

### WARNOCK SINGLE STRAP VISES

This quick acting vise for smooth pipe has the linen grip and positively cannot mar the pipe.

Price.....each	4.00
" Straps....."	.50



## CHAIN TONGS

### VULCAN CHAIN TONGS

IMPROVED PATTERN  
FLAT LINK CHAIN

OLD STYLE  
FLAT LINK CHAIN



Fig. 4570A

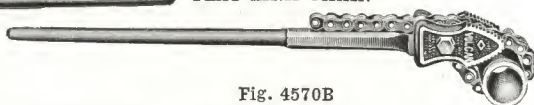


Fig. 4570B

Number, Improved Pattern.....	30	31	32	33	33½	34	35	....
Number, Old Style .....	10	11	12	13	13½	14	15	16
Length.....inches	13¾	20	27	37	44½	50½	64½	87
Takes Pipe....."	1½ to 3¼	1½ to 1½	1½ to 2½	¾ to 4	1 to 6	1½ to 8	2 to 12	4 to 18
Price, with Flat Link Chain...ea.	2.50	3.50	5.00	7.00	9.00	11.00	18.00	40.00
"    Cable Chain....."	2.50	3.50	5.00	7.00	9.00	11.00	18.00	40.00
"    Extra Flat Link Chains. "	.75	1.00	1.50	2.50	3.50	4.50	7.50	20.00
"    Cable Chains....."	.75	1.00	1.50	2.50	3.50	4.50	7.50	20.00
"    Jaws.....per pair	1.00	1.75	2.75	4.00	4.75	5.50	7.50	16.00

### IDEAL JAWS



Fig. 4570C

### IDEAL CHAIN TONGS



Fig. 4570D

Number.....	2	3	4	5	*5A	*5B
Capacity Size, Pipe.....inches	1½ to 3½	1 to 5	2 to 8	2½ to 12	2½ to 16	2½ to 20
"    Fittings....."	1½ " 3	1 " 4	2 " 6	2½ " 10	2½ " 12	2½ " 14
Length of Wrench....."	27	38	49	61	61	61
Weight ".....pounds	10	18	28	50	53	57
Size and Length of Cable Chain.....inches	¾ x 20	1½ x 30	1½ x 35	1½ x 50	1½ x 62	1½ x 74
"    "    Flat Link Chain....."	9/16 x 23	5/8 x 30	11/16 x 37	13/16 x 53	.....	.....
Price, Wrench with Cable Chain.....each	6.00	8.00	11.00	16.00	18.00	20.00
"    "    Flat Link Chain....."	6.90	9.20	12.65	18.40	.....	.....
"    Jaws, Complete with Bolts and Pins. "	3.50	5.00	6.50	8.25	8.25	8.25
"    "    Right or Left....."	1.63	2.25	2.93	3.75	3.75	3.75
"    Bolts....."	.20	.25	.30	.35	.35	.35
"    Pins (Vanadium Steel)....."	.15	.20	.25	.30	.30	.30
"    Cable Chain (Norway Iron)....."	.95	1.20	1.70	3.00	5.00	7.00
"    Flat Link Chain....."	2.00	3.00	4.00	6.00	.....	.....
"    Handle....."	2.10	3.25	4.75	6.90	6.90	6.90

The two-faced jaws shown above grip pipe, beads on fittings, valves, flanges, shafting, bars and odd castings of all kinds. \*Same as No. 5, with extra long chain.

### COMMON CHAIN TONGS

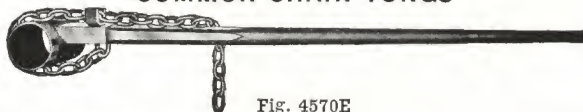


Fig. 4570E

Number.....	2	3	4	5	6	7
Takes Pipe.....inches	1 to 2	1½ to 4	2 to 6	2½ to 8	4 to 10	4 to 16
Length of Lever.....feet	2¾	3	4	5	6	7
Average Weight.....pounds	7	12	24	33	50	100
Price.....each	5.50	6.25	9.00	12.50	16.00	30.00



## PIPE VISES

## MARK MALLEABLE IRON VISES

LATCH PATTERN



Fig. 5290A

KIT PIPE VISE

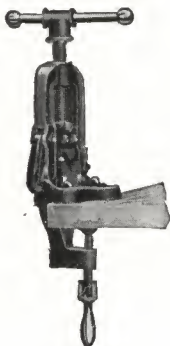


Fig. 5290B



Fig. 5290C

Attachment, patent applied for. Detached instantly without tools. The clamp simply hooks on.

## LATCH PATTERN VISES

Number .....	1	2	3
Holds Pipe .....	$\frac{1}{8}$ to $2\frac{1}{2}$	$\frac{1}{4}$ to $3\frac{1}{2}$	$\frac{1}{2}$ to $4\frac{1}{2}$
Price, Complete .....	10.00	14.00	20.00
" Extra Jaws per Set of Three .....	1.00	1.50	2.25

## KIT PIPE VISES

This vise meets the demand for a vise small enough to be readily carried, easily attached to a bench, and yet of sufficient strength and capacity to be truly serviceable. It is particularly handy for threading pump rod in the field, as it can be attached in a few seconds to the tailboard of a wagon.

Number .....	0	1
Capacity .....	$\frac{1}{8}$ to 2	$\frac{1}{8}$ to $2\frac{1}{2}$
Price, with Attachment .....	10.00	12.00
" without Attachment .....	8.00	10.00

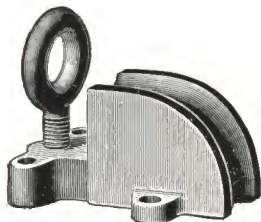


Fig. 5290D

## VANDERMAN PIPE BENDING FORMS

For Straightening and Bending Pipe

This form makes a handy and indispensable fixture for a pipe bench. There is nothing about it to get out of order, and it will last a lifetime. In making bends in light tubes or nickel-plated pipe a piece of sheet lead or leather placed on form and eyebolt will prevent any finished work from being marred.

Number .....	1	2
Takes Pipe .....	$\frac{1}{8}$ to $1\frac{1}{4}$	1 to 2
Price .....	3.50	4.50

## VISES

SMITH PATTERN COMBINATION VISE

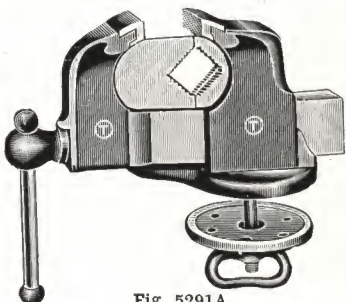


Fig. 5291A

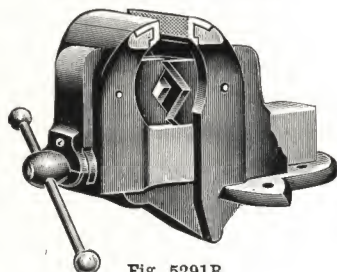
PARKER COMBINATION  
STATIONARY BOTTOM

Fig. 5291B

### SMITH PATTERN COMBINATION VISES

Number.....	1	2	3
Holds Pipe.....inches	$\frac{1}{8}$ to 2	$\frac{1}{4}$ to 3	$\frac{1}{4}$ to 4
Weight.....pounds	47	70	100
Price.....each	16.00	20.00	28.00

### PARKER COMBINATION VISES

Style .....	STATIONARY BOTTOM		SWIVEL BOTTOM		
Numbe.....	88 $\frac{1}{2}$	89 $\frac{1}{2}$	87	88	288 $\frac{1}{2}$
Width of Jaw.....inches	4 $\frac{3}{4}$	5 $\frac{3}{8}$	3 $\frac{5}{8}$	4 $\frac{1}{8}$	4 $\frac{3}{4}$
Takes Pipe....."	4 and under	6 and under	2 and under	3 and under	4 and under
Price.....each	28.00	35.00	16.00	20.00	28.00

HEAVY BENCH AND PIPE VISE

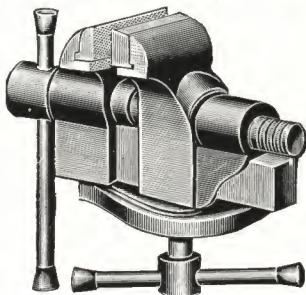


Fig. 5291C

"VULCAN" CHAIN PIPE VISE

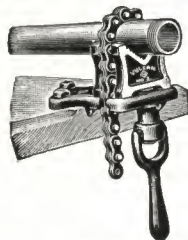


Fig. 5291D

### HEAVY BENCH AND PIPE VISES

Width of Jaw.....inches	5
Takes Pipe.....inches	$\frac{1}{8}$ to 6
Price.....each	18.00

### "VULCAN" CHAIN PIPE VISES

Number.....	1	2	4
Holds Pipe.....inches	$\frac{1}{8}$ to 2	$\frac{1}{4}$ to 4	$\frac{3}{4}$ to 8
Price, Complete.....each	3.50	6.50	18.00
" Extra Jaws.....per pair	1.20	2.75	7.50
" " Chains with Screw.....each	1.10	1.75	4.75

## IMICO SECTIONAL HEATING BOILERS

### CONSTRUCTION

The Imico Heating Boilers are made of vertical cast iron sections connected to cast iron headers by extra heavy wrought iron nipples, all screw joints being readily accessible and connected outside the fire. The heating engineer will appreciate one point peculiar to the Imico Boiler, namely: That care is taken by means of special machinery to secure perfect alignment—a feature not possessed by other screw connection boilers.

### CIRCULATION

The Imico Heating Boilers are so constructed that the circulation is absolutely perfect; the waterways being vertically inclined and fire surfaces being horizontal, insure at all times good results and quick separation of steam from water. Another feature of construction inducing perfect circulation is the fact that each section has independent positive internal circulation.

### HEATING SURFACE

Each Imico Heating Boiler is provided with a sufficiency of grate surface, together with the proper proportion of prime heating surface to utilize the products of combustion, and for this reason we claim that this boiler is a small coal consumer in proportion to results obtained. This boiler practically possesses all the merits of water tube construction, with better results as to circulation.

### FUEL

The Imico Heating Boilers are adapted for burning anthracite coal, bituminous coal, coke or wood, and as there are no inaccessible surfaces to clog up, any kind of fuel may be used successfully.

### GRATE FIXTURES

The Imico Heating Boiler has a rocking grate, shaken by a lever, which does not require dumping to clear out clinkers, as ashes and clinkers are ground up by the rocking action of the grate. The grates of all except the smaller sizes are shaken by two sets of levers, each set controlling one half of the grate surface. All grate fixtures are made of malleable iron, excepting the grate bars; namely, the handle, shaking bar, lever, toggle and bracket are made of malleable iron and the bars proper of gray iron.

### CLEANLINESS

An important factor in all heating boilers is accessibility of flue surface in order that same may be kept clean. In the Imico Heating Boilers, the last section can be cleaned from the back and all other sections are easily reached through the front cleanout doors.

### SPECIAL NOTICE—RATINGS

The trade will note that in computing the ratings of the Imico Heating Boilers, the combined experience of many practical heating engineers has been followed, and a standard which is so conservative has been adopted, that the erecting engineer will find that each size of the Imico Heating Boiler will carry the radiation stated, provided that normal conditions obtain regarding exposure, installation, etc., etc.



## IMICO SECTIONAL WATER BOILERS

## 400 SERIES

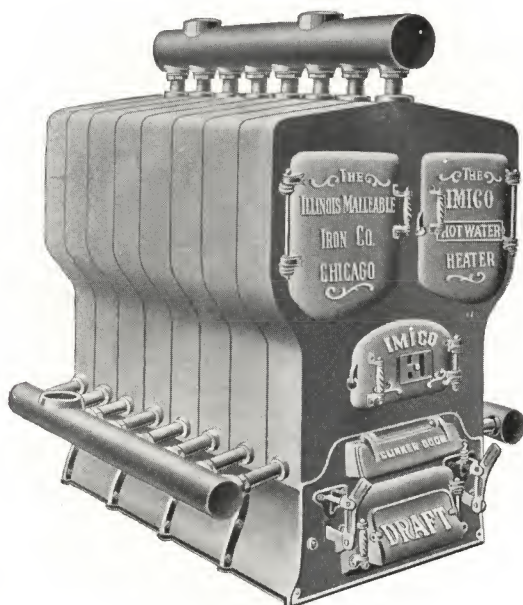


Fig. 7511A

Number	Number of Sections	Length Inches	Base Inches	Grate Inches	Tapped for Flow and Return Inches	Direct Radiation Square Feet	Price Each
395	5	50	33x33	24x27	2—3	1500	360.00
400	6	57	33x40	24x34	2—3	1825	420.00
405	7	63	33x46	24x40	2—4	2150	480.00
410	8	69	33x52	24x46	2—4	2525	545.00
415	9	75	33x58	24x52	2—4	2875	610.00
420	10	82	33x65	24x59	2—4	3250	680.00

Prices include necessary fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on Imico Water Boilers are based on the assumption that the mean temperature of the water at the boiler be 180° Fahr.

When soft coal is used as fuel, it will be found advisable to install a boiler one size larger than that figured for hard coal.

## IMICO SECTIONAL STEAM BOILERS

## 500 SERIES

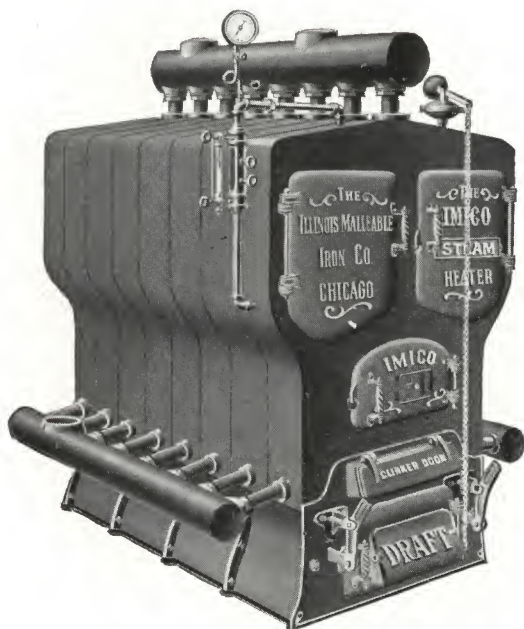


Fig. 8958A

Number	Number of Sections	Length Inches	Base Inches	Grate Inches	Tapped for Flow and Return Inches	Direct Radiation Square Feet	Price Each
495	5	50	33x33	24x27	2—3	900	370.00
500	6	57	33x40	24x34	2—3	1100	430.00
505	7	63	33x46	24x40	2—4	1300	490.00
510	8	69	33x52	24x46	2—4	1525	555.00
515	9	75	33x58	24x52	2—4	1750	620.00
520	10	82	33x65	24x59	2—4	1975	690.00

Prices include necessary trimmings and fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on Imico Steam Boilers are based on the assumption that an average pressure of 2 pounds be maintained at the boiler.

When soft coal is used as fuel, it will be found advisable to install a boiler one size larger than that figured for hard coal.

## IMICO SECTIONAL WATER BOILERS

## 600 SERIES

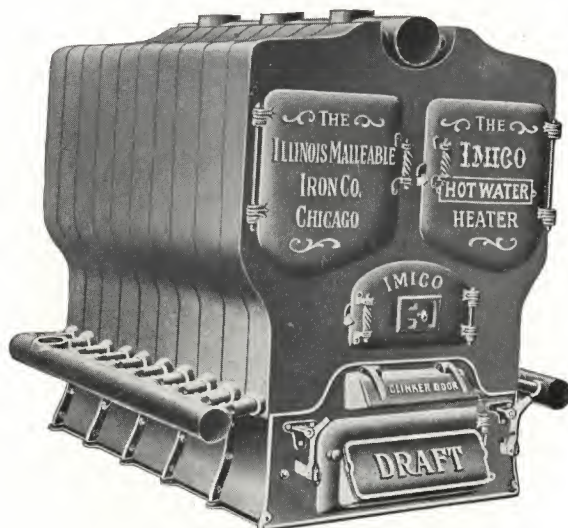


Fig. 7750A

Number	Number of Sections	Base Inches	Grate Inches	Tapped for Flow and Return Inches	Direct Radiation Square Feet	Price Each
600	7	44x45	36x40	2—4	3650	740.00
605	8	44x51	36x46	3—4	4300	820.00
610	9	44x57	36x52	2—5	4950	905.00
615	10	44x64	36x59	2—5	5600	990.00
620	11	44x70	36x65	2—6	6250	1075.00
625	12	44x76	36x65	2—6	6900	1160.00
630	13	44x83	36x65	2—6	7550	1245.00
635	14	44x89	36x65	2—6	8200	1330.00

Prices include necessary fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on Imico Water Boilers are based on the assumption that the mean temperature of the water at the boiler be 180° Fahr.

When soft coal is used as fuel, it will be found advisable to install a boiler one size larger than that figured for hard coal.



## IMICO SECTIONAL STEAM BOILERS

## 700 SERIES



Fig. 10563A

Number	Number of Sections	Base Inches	Grate Inches	Tapped for Flow Inches	Tapped for Return Inches	Direct Radiation Square Feet	Price Each
700	7	44x45	36x40	2—4	2—4	2200	760.00
705	8	44x51	36x46	3—4	4—4	2600	840.00
710	9	44x57	36x52	2—5	4—4	3000	925.00
715	10	44x64	36x59	2—5	4—4	3400	1010.00
720	11	44x70	36x65	2—6	4—4	3800	1095.00
725	12	44x76	36x65	2—6	4—4	4200	1180.00
730	13	44x83	36x65	2—6	4—5	4600	1265.00
735	14	44x89	36x65	2—6	4—5	5000	1350.00

Prices include necessary trimmings and fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on Imico Steam Boilers are based on the assumption that an average pressure of 2 pounds be maintained at the boiler.

When soft coal is used as fuel, it will be found advisable to install a boiler one size larger than that figured for hard coal.

# **IMICO SECTIONAL BOILERS** **DIMENSIONS AND MEASUREMENTS OF 400 AND 500 SERIES**

Number of Water Boiler.....	395	400	405
Number of Steam Boiler.....	495	500	505
Number of Sections.....	5	6	7
Length " " only.....inches	31	38	44
" including Smoke Box....."	50	57	63
Width of Sections....."	40	40	40
" Center to Center of Return Headers....."	46 $\frac{1}{2}$	46 $\frac{1}{2}$	46 $\frac{1}{2}$
Height to Flow Pipe Openings....."	69	69	69
" " Top of Sections....."	58	58	58
" " Return Pipe Openings....."	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$
" of Base....."	14	14	14
" to Smoke Pipe Opening....."	43	43	43
" of Water Line....."	51	51	51
Diameter of Smoke Pipe....."	8	8	10
Dimensions of Base....."	33x33	33x40	33x46
" " Grate....."	24x27	24x34	24x40
" " Fire Door Opening....."	9x14 $\frac{1}{2}$	9x14 $\frac{1}{2}$	9x14 $\frac{1}{2}$
Front of Boiler to Center of First Flow Pipe Opening....."	8	14 $\frac{1}{2}$	8
Center to Center of Flow Pipe Openings....."	12 $\frac{3}{4}$	12 $\frac{3}{4}$	25 $\frac{1}{2}$
Front of Boiler to Center of Return Pipe Openings....."	17 $\frac{1}{2}$	24 $\frac{3}{4}$	30
Flow Pipe Openings....."	2—3	2—3	2—4
Return Pipe Openings....."	2—3	2—3	2—4
Number of Water Boiler.....	410	415	420
Number of Steam Boiler.....	510	515	520
Number of Sections.....	8	9	10
Length " " only.....inches	50	57	63
" including Smoke Box....."	69	75	82
Width of Sections....."	40	40	40
" Center to Center of Return Headers....."	46 $\frac{1}{2}$	46 $\frac{1}{2}$	46 $\frac{1}{2}$
Height to Flow Pipe Openings....."	69	69	69
" " Top of Sections....."	58	58	58
" " Return Pipe Openings....."	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$
" of Base....."	14	14	14
" to Smoke Pipe Opening....."	43	43	43
" of Water Line....."	51	51	51
Diameter of Smoke Pipe....."	10	12	12
Dimensions of Base....."	33x52	33x58	33x65
" " Grate....."	24x46	24x52	24x59
" " Fire Door Opening....."	9x14 $\frac{1}{2}$	9x14 $\frac{1}{2}$	9x14 $\frac{1}{2}$
Front of Boiler to Center of First Flow Pipe Opening....."	14 $\frac{1}{2}$	8	14 $\frac{1}{2}$
Center to Center of Flow Pipe Openings....."	25 $\frac{1}{2}$	38 $\frac{1}{2}$	38 $\frac{1}{2}$
Front of Boiler to Center of Return Pipe Openings....."	37	43 $\frac{1}{4}$	49 $\frac{1}{2}$
Flow Pipe Openings....."	2—4	2—4	2—4
Return Pipe Openings....."	2—4	2—4	2—4

## IMICO SECTIONAL BOILERS

## DIMENSIONS AND MEASUREMENTS OF 600 AND 700 SERIES

Number of Water Boiler.....	600	605	610	615
Number of Steam Boiler.....	700	705	710	715
Number of Sections.....	7	8	9	10
Length of Sections only.....inches	44 $\frac{1}{8}$	50 $\frac{1}{4}$	56 $\frac{3}{8}$	63
“ including Smoke Box.....“	65 $\frac{1}{8}$	71 $\frac{1}{4}$	77 $\frac{5}{8}$	84
Width of Sections.....“	53	53	53	53
“ Center to Center of Return Headers.....“	60	60	60	60
Height to Flow Pipe Openings.....“	73	73	73	73
“ “ Top of Sections.....“	73	73	73	73
“ “ Return Pipe Openings.....“	17 $\frac{1}{4}$	17 $\frac{1}{4}$	17 $\frac{1}{4}$	17 $\frac{1}{4}$
“ of Base.....“	14	14	14	14
“ to Smoke Pipe Opening.....“	49	49	49	49
“ of Water Line.....“	61 $\frac{1}{2}$	61 $\frac{1}{2}$	61 $\frac{1}{2}$	61 $\frac{1}{2}$
Dimensions of Smoke Pipe Opening.....“	14	14	14	16
“ “ Base.....“	45x44	51x44	57x44	64x44
“ “ Grate.....“	40x36	46x36	52x36	59x36
“ “ Fire Door Opening.....“	19x11	19x11	19x11	19x11
Front of Boiler to Center of First Flow Pipe Opening.....“	14 $\frac{1}{2}$	15 $\frac{1}{2}$	15 $\frac{1}{2}$	20 $\frac{3}{4}$
Center to Center of Flow Pipes.....“	13 $\frac{3}{4}$	12 $\frac{1}{2}$	25	25 $\frac{1}{2}$
Front of Boiler to Center of Return Pipe Openings.....“	8	14 $\frac{1}{2}$	8	14 $\frac{1}{2}$
Center to Center of Return Pipe Openings.....“	....	25 $\frac{1}{2}$	32	38
Flow Pipe Openings.....“	2—4	3—4	2—5	2—5
Return Pipe Openings.....“	2—4	4—4	4—4	4—4
Number of Water Boiler.....	620	625	630	635
Number of Steam Boiler.....	720	725	730	735
Number of Sections.....	11	12	13	14
Length of Sections only.....inches	69 $\frac{3}{8}$	75 $\frac{3}{8}$	82	88 $\frac{3}{8}$
“ including Smoke Box.....“	90 $\frac{3}{8}$	96 $\frac{3}{8}$	103	109 $\frac{3}{8}$
Width of Sections.....“	53	53	53	53
“ Center to Center of Return Headers.....“	60	60	60	60
Height to Flow Pipe Openings.....“	73	73	73	73
“ “ Top of Sections.....“	73	73	73	73
“ “ Return Pipe Openings.....“	17 $\frac{1}{4}$	17 $\frac{1}{4}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$
“ of Base.....“	14	14	14	14
“ to Smoke Pipe Opening.....“	49	49	49	49
“ of Water Line.....“	61 $\frac{1}{2}$	61 $\frac{1}{2}$	61 $\frac{1}{2}$	61 $\frac{1}{2}$
Dimensions of Smoke Pipe Opening.....“	16	16	20	20
“ “ Base.....“	70x44	76 $\frac{1}{2}$ x44	83x44	89x44
“ “ Grate.....“	65x36	65x36	65x36	65x36
“ “ Fire Door Opening.....“	19x11	19x11	19x11	19x11
Front of Boiler to Center of First Flow Pipe Opening.....“	20 $\frac{3}{4}$	21 $\frac{1}{4}$	21 $\frac{1}{4}$	44
Center to Center of Flow Pipes.....“	31 $\frac{1}{2}$	31 $\frac{1}{2}$	37 $\frac{3}{4}$	44
Front of Boiler to Center of Return Pipe Openings.....“	17 $\frac{3}{4}$	17 $\frac{3}{4}$	17 $\frac{3}{4}$	17 $\frac{3}{4}$
Center to Center of Return Pipe Openings.....“	38	44 $\frac{1}{4}$	50 $\frac{1}{2}$	57
Flow Pipe Openings.....“	2—6	2—6	2—6	2—6
Return Pipe Openings.....“	4—4	4—4	4—5	4—5



**IMICO SECTIONAL BOILERS**

INTERIOR VIEW OF 400 AND 500 SERIES

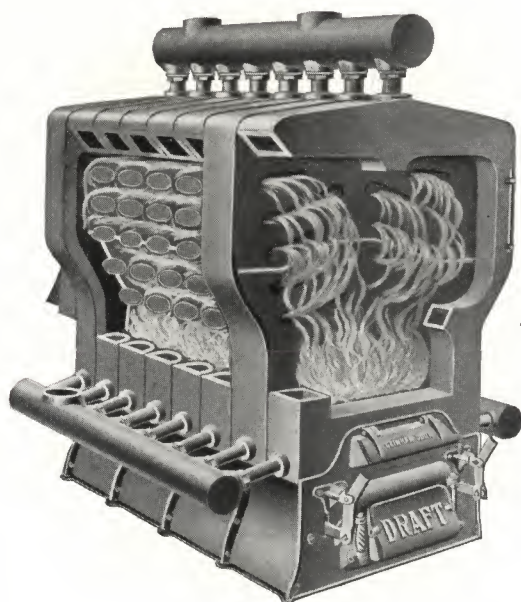


Fig. 8635A

SECTIONS OF 400 AND 500 SERIES

INTERMEDIATE  
SECTION

Fig. 8635B

NEXT TO LAST  
SECTION

Fig. 8635C

BACK SECTION

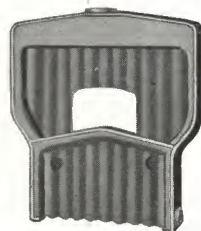


Fig. 8635D

## IMICO SECTIONAL BOILERS

FRONT VIEW OF SECTIONS, 600 AND 700 SERIES

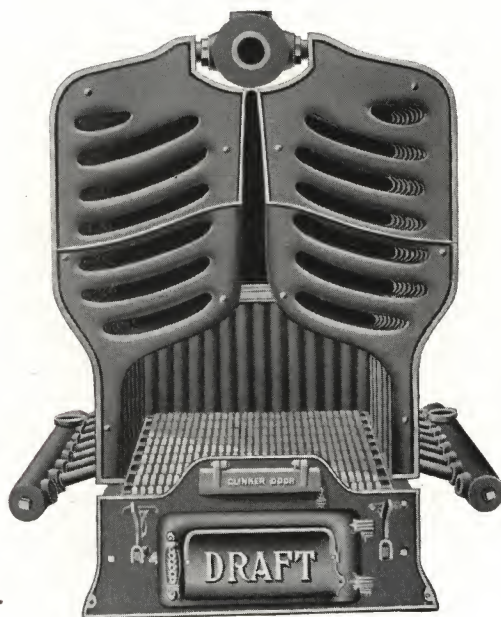


Fig. 9340A

SECTIONS OF 600 AND 700 SERIES

INSIDE VIEW  
FRONT SECTION

Fig. 9340B

INTERMEDIATE  
SECTION

Fig. 9340C

NEXT TO LAST  
SECTION

Fig. 9340D

BACK SECTION



Fig. 9340E

**IMICO SECTIONAL STEAM BOILERS**

VIEW OF REAR OF BACK SECTION, SHOWING DRAIN  
AND EQUALIZER PIPES

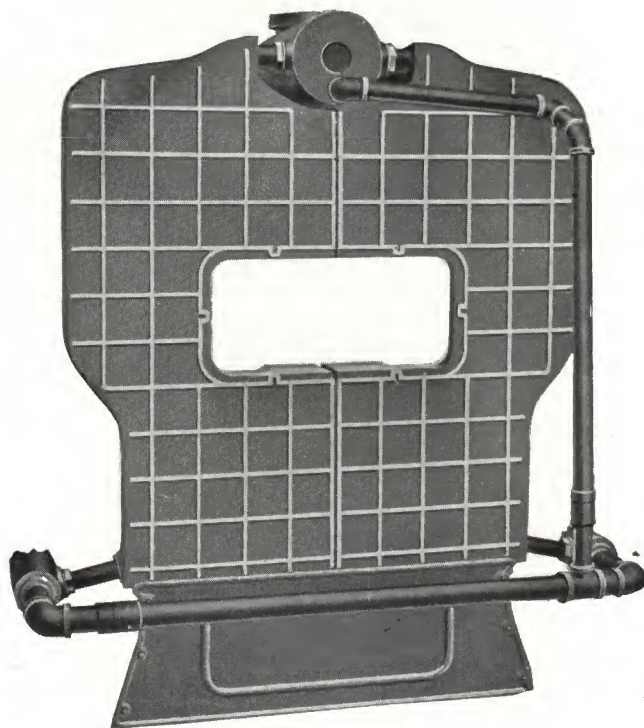


Fig. 9349A



## IMICO SECTIONAL BOILERS

GRATE CLOSED, IN ACTUAL USE



Fig. 9361A

GRATE OPEN IN ACT OF SHAKING

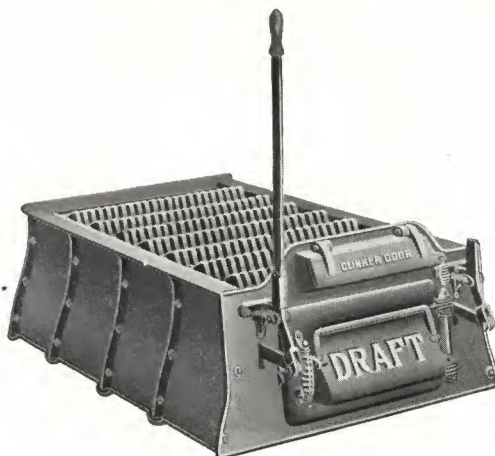


Fig. 9361B

SMOKE PIPE OUTLET AND CHECK DAMPER



Fig. 9361C

## IMICO SECTIONAL BOILERS REPAIR PARTS

## 400 AND 500 SERIES

## 600 AND 700 SERIES

Description	Price Each	Description	Price Each
Front Section .....	44.00	Half Front Section.....	40.00
Intermediate Section.....	46.00	" Intermediate Section.....	40.00
Back Section .....	59.00	" Bridge Section.....	45.00
Fire Door.....	1.50	" Back Section.....	44.00
" " Lining.....	.80	Fire Door Frame.....	1.50
Flue " .....	2.50	" " .....	2.50
" " Lining.....	1.80	" " Lining.....	1.70
Clinker Door.....	.40	Flue " .....	6.00
Fire Door Slide.....	.10	" " Lining.....	3.60
Ash Pit Door only.....	1.40	Clinker Door.....	.60
Draft Door.....	.60	Fire Door Slide.....	.20
Ash Pit Door Complete.....	2.00	Ash Pit Door only.....	2.50
Front Plate for Ash Pit .....	3.50	Draft Door .....	1.00
Rear Plate for Ash Pit Complete..	4.00	Ash Pit Door Complete.....	3.50
Door for Rear Ash Pit.....	1.60	Front Plate for Ash Pit.....	6.00
Side Plate for Ash Pit, 24-inch.....	4.00	Rear " " " " Complete...	7.50
" " " " " 12 " .....	2.00	Door for Rear Ash Pit.....	2.20
" " " " " 6 " .....	1.20	Side Plates for Ash Pit, 24-inch ....	4.00
Grate Bars.....	4.00	" " " " " 12 " ....	2.00
Smoke Box Complete.....	6.00	" " " " " 6 " ....	1.20
Shaker Bar.....	.60	Grate Bars.....	6.00
.....	....	Smoke Outlet Complete.....	12.00
.....	....	Shaker Bar .....	1.50

### HEADERS FOR IMICO SECTIONAL BOILERS

Number of Water Boiler .....	395	400	405	410	415	420	600
" " Steam " .....	495	500	505	510	515	520	700
Price, Flow Header.....each	10.00	11.50	13.00	14.50	16.00	17.50	24.00
" Return " .....	5.50	7.00	8.50	10.00	11.50	13.00	9.00
Number of Water Boiler .....	605	610	615	620	625	630	635
" " Steam " .....	705	710	715	720	725	730	735
Price, Flow Header .....	25.50	26.00	29.00	33.00	36.00	41.00	44.00
" Return " .....	10.50	11.50	13.00	15.00	16.50	20.00	23.00

Extra heavy nipples for above, 1½-inch 60 cents; 2-inch, 70 cents.

## IMICO ILLINOIS WATER AND STEAM BOILERS

### FOR HARD OR SOFT COAL

The Imico Illinois is an improvement on the original Imico Diamond—retaining the corrugated sections and fire pot, but having larger flues.

The sections are diamond corrugated, exposing a much larger amount of surface to action of fire than is possible with plain sections; these sections are connected one to another with large slip nipples.

The fire pot in the Imico Illinois is large and deep, with diamond corrugations on sides and with extended crown sheet (note details on illustration)—intended to absorb all the heat possible; the diamond corrugations in fire pot admit a free circulation of air against water space, thus maintaining a bright, active fire with no dead edges as in ordinary fire pots.

The draft door is located on side of boiler, so that chains from damper regulator do not interfere with ash pit door.

Ash pit is large and very deep.

The Imico Illinois Boiler is fitted with a rocking grate, all working parts, except the grate bars, being made of malleable iron.



## IMICO ILLINOIS WATER BOILERS



Fig. 9214A

Number	Height Inches	Diameter of Base Inches	Diameter of Boiler Inches	Diameter of Fire Pot Inches	Diameter of Grate Inches	Diameter of Smoke Pipe Inches	Taprod for Flow and Return Inches	Direct Radiation Square Feet	Price Each
481	50 $\frac{1}{2}$	29	22 $\frac{3}{4}$	18 $\frac{1}{2}$	19	8	2-2 $\frac{1}{2}$	625	171.00
581	56	29	22 $\frac{3}{4}$	18 $\frac{1}{2}$	19	8	2-2 $\frac{1}{2}$	700	191.00
402	52 $\frac{1}{2}$	31	24 $\frac{3}{4}$	20 $\frac{1}{2}$	21	8	2-3	800	207.00
502	58	31	24 $\frac{3}{4}$	20 $\frac{1}{2}$	21	8	2-3	900	224.00
422	56	33	26 $\frac{3}{4}$	22 $\frac{1}{2}$	23	9	2-3 $\frac{1}{2}$	950	230.00
522	62	33	26 $\frac{3}{4}$	22 $\frac{1}{2}$	23	9	2-3 $\frac{1}{2}$	1075	277.50
442	58	36	28 $\frac{3}{4}$	24 $\frac{1}{2}$	25	10	2-4	1150	290.00
542	64	36	28 $\frac{3}{4}$	24 $\frac{1}{2}$	25	10	2-4	1275	314.00

Prices include necessary fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on the Imico Water Boilers are based on the assumption that the mean temperature of the water at the boiler be 180° Fahr.

When soft coal is used as fuel, it will be found advisable to install a boiler one size larger than that figured for hard coal.

## IMICO ILLINOIS STEAM BOILERS

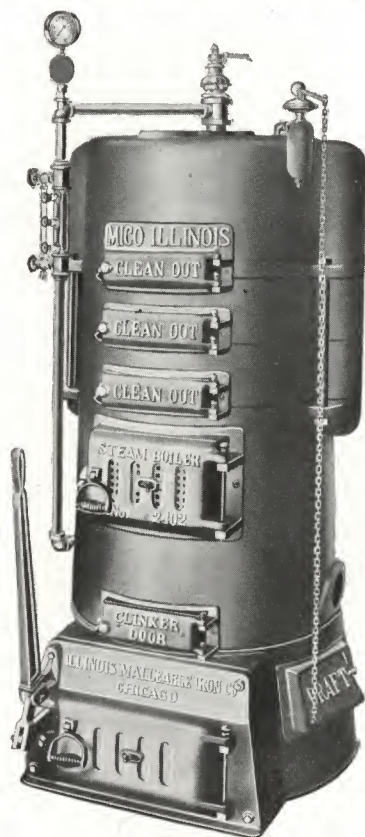


Fig. 9341A

Number	Height Inches	Diameter of Base Inches	Diameter of Boiler Inches	Diameter of Fire Pot Inches	Diameter of Grate Inches	Diameter of Smoke Pipe Inches	Tapped for Flow and Return Inches	Direct Radiation Square Feet	Price Each
2481	56 $\frac{1}{2}$	29	22 $\frac{3}{4}$	18 $\frac{1}{2}$	19	8	2-2 $\frac{1}{2}$	375	180.00
2581	61 $\frac{1}{2}$	29	22 $\frac{3}{4}$	18 $\frac{1}{2}$	19	8	2-2 $\frac{1}{2}$	425	199.50
2402	58	31	24 $\frac{3}{4}$	20 $\frac{1}{2}$	21	8	2-3	475	213.00
2502	63 $\frac{1}{2}$	31	24 $\frac{3}{4}$	20 $\frac{1}{2}$	21	8	2-3	550	233.00
2422	61 $\frac{1}{2}$	33	26 $\frac{3}{4}$	22 $\frac{1}{2}$	23	9	2-3 $\frac{1}{2}$	575	240.00
2522	67 $\frac{1}{2}$	33	26 $\frac{3}{4}$	22 $\frac{1}{2}$	23	9	2-3 $\frac{1}{2}$	650	287.50
2442	63 $\frac{1}{2}$	36	28 $\frac{3}{4}$	24 $\frac{1}{2}$	25	10	2-4	700	300.00
2542	69 $\frac{1}{2}$	36	28 $\frac{3}{4}$	24 $\frac{1}{2}$	25	10	2-4	775	324.00

Prices include necessary trimming and fire tools.

Ratings are gross, and it is understood that all piping, mains and risers shall be figured as radiating surface.

The ratings on Imico Steam Boilers are based on the assumption that an average pressure of 2 pounds be maintained at the boiler.

When soft coal is used, it will be found advisable to install a boiler one size larger than that figured for hard coal.

**IMICO ILLINOIS BOILERS**

SECTIONAL VIEW OF IMICO ILLINOIS BOILER, SHOWING DIAMOND CORRUGATIONS

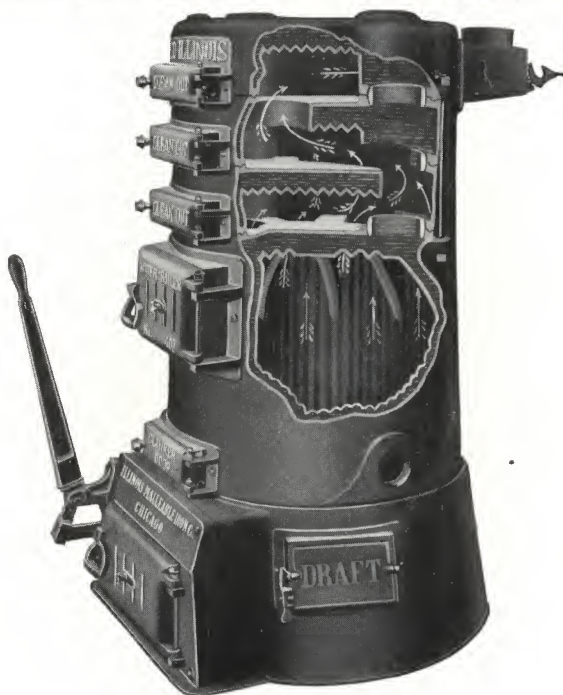


Fig. 9393A

SECTIONAL VIEW OF SECTION OF IMICO ILLINOIS BOILER, SHOWING DIAMOND CORRUGATIONS AND WATER CIRCULATION

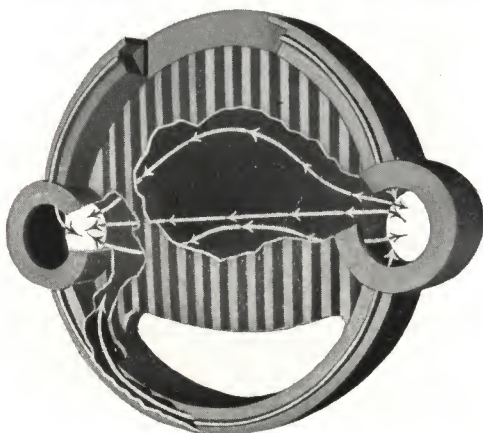


Fig. 9393B



**IMICO ILLINOIS BOILERS**

INSIDE VIEW OF FIRE POT OF IMICO ILLINOIS BOILERS  
SHOWING DIAMOND CORRUGATIONS ALONG SIDES OF FIRE POT AND  
EXTENDED CONSTRUCTION OF CROWN SHEET

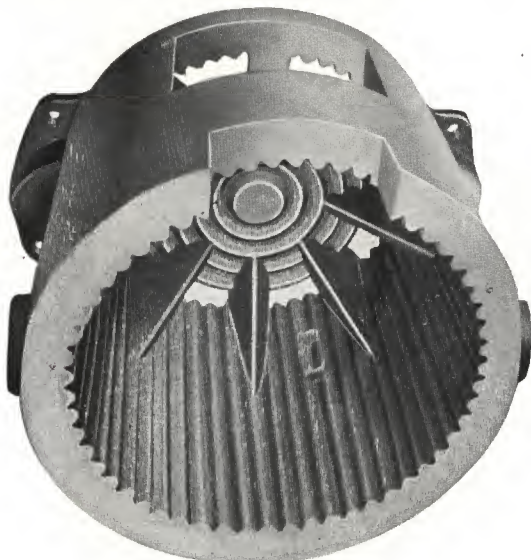


Fig. 6382A

VIEW OF GRATE OF IMICO ILLINOIS BOILERS



Fig. 6382B

## IMICO ILLINOIS ROUND BOILERS

## REPAIR PARTS

Trade Number of Boiler.....	{ Water Steam	481-581	402-502	422-522	442-542
		2481-2581	2402-2502	2422-2522	2442-2542
Nominal Diameter of Grate.....inches		19	21	23	25
Price, No. 1, Base.....each		12.00	14.50	17.00	19.00
" " 2, Shaker Bracket....."		.30	.30	.30	.30
" " 3, Left-Hand Grate....."		1.50	1.80	2.00	2.30
" " 4, Right-Hand Grate....."		1.50	1.80	2.00	2.30
" " 5, Center Grate....."		2.00	2.30	2.60	2.90
" " 6, Ash Pit Door Frame....."		1.75	1.75	2.60	3.10
" " 7, " " "....."		1.00	1.00	1.25	1.65
" " 8, Clinker "....."		.30	.30	.35	.35
" " 9, Draft Door Frame....."		.35	.40	.60	.65
" " 10, " " "....."		.30	.35	.40	.40
" " 11, Shaker Hole Cover....."		.05	.05	.05	.05
" " 12, Fire Pot Section....."		48.00	60.00	66.00	75.00
" " 13, " Door....."		.60	.60	.90	.90
" " 14, Ash " Slide....."		.15	.15	.15	.15
" " 14A Fire " "....."		.15	.15	.15	.15
" " 15, " " Lining....."		.30	.40	.45	.50
" " 16, " " Frame....."		1.10	1.20	1.80	2.00
" " 17, Ratchet Catch....."		.05	.05	.05	.05
" " 18, Intermediate Section....."		16.00	20.00	23.00	26.00
" " 19, " " "....."		16.00	20.00	23.00	26.00
" " 20, " Cleanout Door Frame....."		.35	.40	.40	.50
" " 21, " " "....."		.10	.10	.15	.15
" " 22, Top Cleanout Door Frame..."		.50	.50	.60	.60
" " 23, " Section....."		20.00	22.00	26.00	31.00
" " 24, Steam "....."		.....	33.00	.....	.....
" " 25, Smoke Outlet....."		2.00	2.25	3.00	3.00
" " 26, Pipe Damper Stem....."		.20	.20	.20	.20
" " 27, Check Damper....."		.25	.30	.30	.30
" " 28, Pipe "....."		.20	.25	.25	.25
" " 29, Shaker Lever....."		.60	.60	.60	.60
" " 30, Coil Opening Clamp....."		.05	.05	.05	.05
" " 31, " " Cover....."		.10	.10	.10	.10
" " 32, Grate Connecting Bar....."		.30	.30	.40	.40
" " 33, " Toggle....."		.25	.25	.25	.25
" " 34, Shaker Bar....."		.40	.40	.50	.50
" " 35, Clinker Door Frame....."		.40	.45	.50	.60

Slip connections nipples each .60.

# THE ILLINOIS HOT WATER HEATERS

## MAGAZINE FEED—FOR HARD COAL

FRONT VIEW, Nos. 5-6-7



Fig. 9240A

FRONT VIEW, No. 15



Fig. 9240B

INTERNAL VIEW, No. 15

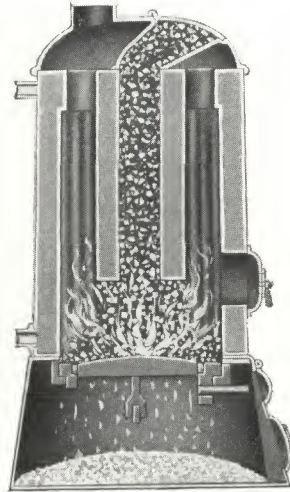


Fig. 9240C

Number .....	5	6	7	15
Height .....	37	43	49	45½
Outside Diameter of Boiler .....	13	15¾	18½	19½
Inside " " Magazine .....	5	6	7½	6
Diameter of Base .....	18½	21	23½	24
" " Grate .....	10	12	15	16
Diameter Smoke Pipe .....	5	6	6	6
Iron Pipe Connections .....	1¼	1½	2	1½
Heating Capacity, per hour.....	100	180	300	400
Price .....	37.00	65.00	89.00	139.00

Capacity named above is based on the assumption that sufficient storage tank capacity is provided for heater.

NOTE.—The magazines in Nos. 5, 6 and 7 are plain, without water chamber—the No. 15 being the only one made with water chamber.



# IMICO GARBAGE BURNER AND WATER HEATER

No. 71, FRONT VIEW



Fig. 7765A

No. 71, INTERNAL VIEW

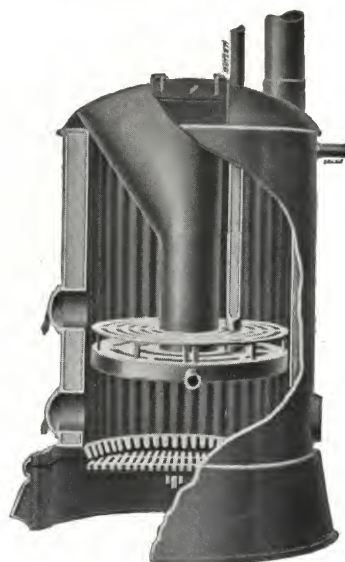


Fig. 7765B

The No. 72 size is suitable for residences and small apartment houses, say not exceeding six suites. The No. 71 has been successfully used in buildings containing twelve apartments.

Number .....	71	72
Height Over All.....inches	46	46
“ of Water Cylinder..... “	28	28
Diameter of Cylinder..... “	31½	24
“ “ Base..... “	35	28½
“ “ Grate..... “	27	17
Smoke Outlet..... “	10x5	7x4¾
Iron Pipe Connections..... “	3	2
Heating Capacity, per hour.....gallons	750	325
Price.....each	160.00	115.00

## BOILERS AND HEATERS

No. 112 "AETNA" HOT WATER BOILER  
FOR HARD AND SOFT COAL



Fig. 77A

IMICO LAUNDRY  
WATER HEATER  
No. 52, TWO HOLES  
No. 54, FOUR HOLES



Fig. 77B

"AETNA" HOT WATER BOILERS  
With Lengthened Water Cylinder

Number .....	112	116	120
Height .....	35	38½	40
Diameter of Heater.....inches	16	19	24
" " Grate....."	12	16	20
Smoke Pipe....."	5	6	6
Iron Pipe Connections....."	11¼	1½	2
Capacity, Direct Radiation.....square feet	115	200	300
Heating Capacity, per hour.....gallons	150	260	400
Price.....each	36.00	50.00	72.00

Capacities named above are based on assumption that sufficient storage tank capacity is provided for heater.

### IMICO LAUNDRY WATER HEATERS

The Imico Hot Water Heaters are durably constructed with heavy draw center shaking grates. The large exposure of heating surface to the direct action of the fire makes the Imico a very rapid heater and is extremely economical in the consumption of fuel.

Number .....	52	54
Height .....	23½	23½
Size of Top.....inches	13½x21½	19¾x21½
Outside Diameter of Fire Pot Section....."	14	14
Inside " " " " " "....."	11	11
Height of Fire Pot Section....."	7	7
Diameter of Grate....."	10	10
Smoke Pipe....."	6	6
Iron Pipe Connections....."	1	1
Heating Capacity, per hour.....gallons	30-100	30-100
Price.....each	19.00	22.50

## STANDARD FIRE BOX BOILERS

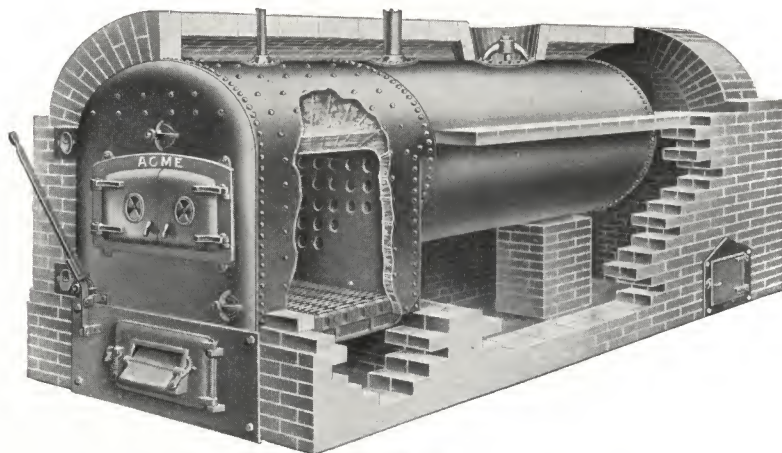


Fig. 6509A

## BRICK-SETTING PLAN

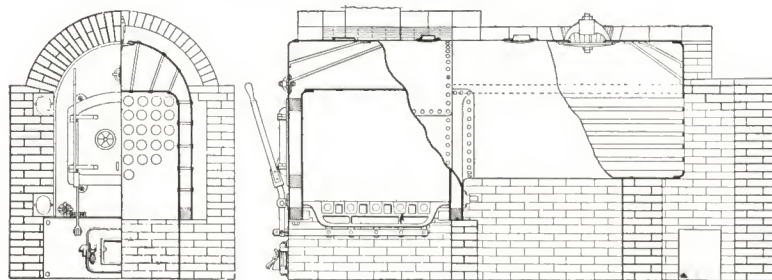


Fig. 6509B

## APPROXIMATE MEASUREMENTS

Number.....	1	2	3	4	5	6	7	8	9	10
Extreme Height of Brickwork...inches	72	72	72	81	81	81	87	87	87	95
Height to Top of Boiler..... "	57	57	57	64	64	64	72	72	72	78
" of Water Line..... "	51	51	51	56	56	56	61	61	61	65
" " Ash Pit Front..... "	17	17	17	17	17	17	17	17	17	17
Extreme Length of Brickwork....feet	8½	9½	10½	9½	11	12½	10½	12	13½	12½
" Width " " inches	67	67	67	73	73	73	79	79	79	86
Number.....	11	12	13	14	15	16	17	18	19	20
Extreme Height of Brickwork...inches	95	95	104	104	109	109	119	119	129	129
Height to Top of Boiler..... "	78	78	86	86	92	92	98	98	106	106
" of Water Line..... "	65	65	66	66	72	72	78	78	84	84
" " Ash Pit Front..... "	17	17	17	17	17	17	17	17	17	17
Extreme Length of Brickwork....feet	14	15½	16	18½	18	20½	18½	20½	18½	20½
" Width " " inches	86	86	92	92	98	98	108	108	120	120



## STANDARD FIRE BOX BOILERS

## STEAM OR WATER—FOR BRICK SETTING; WITHOUT DOMES

Number .....	1	2	3	4	5	6	7	8	9	10
Diameter of Shell . . . in.	30	30	30	36	36	36	42	42	42	48
Length Over All . . . ft.	6½	7½	8½	7½	9	10½	8½	10	11½	10½
“ of Fire Box . . . in.	26	32	38	32	38	44	38	44	50	44
Width “ “ “ “	24	24	24	30	30	30	36	36	36	42
Fire Doors, Single . . .	12x16	12x16	12x16	.....	.....	.....	.....	.....	.....	.....
“ “ Double “ “	.....	.....	.....	16x22	16x22	16x22	16x24	16x24	16x24	18x30
Approx. Weight of Boiler Complete with Cast. lbs.	2400	2700	3100	3500	3800	4400	4600	5200	5700	6700
Steam Outlet . . . . . in.	3	3	4	4	4	4	6	6	6	6
Return “ “ “ “	2½	2½	3	3	3	3	4	4	4	4
Water Tapping—Flow and Return, 2 Each. “	4	4	4	5	5	5	5	6	6	6
Size of Smoke Pipe . . . “	16	16	16	18	18	18	20	20	20	22
Rating Steam . . . sq. ft.	900	1000	1200	1400	1700	2000	2200	2500	2900	3200
“ Water . . . . . “	1400	1600	2000	2300	2800	3300	3600	4100	4800	5600
Price, Steam Boiler Com- plete, with Castings	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
—no Trimmings . . each	285.00	300.00	320.00	375.00	400.00	435.00	460.00	510.00	560.00	630.00
Price, Steam Trim. . . extra	18.00	18.00	19.00	19.00	19.00	19.00	23.00	23.00	23.00	23.00
“ Water Boiler with Castings—no Trim. “	295.00	310.00	330.00	390.00	415.00	450.00	475.00	525.00	575.00	645.00
Number .....	11	12	13	14	15	16	17	18	19	20
Diameter of Shell . . . in.	48	48	54	54	60	60	66	66	72	72
Length Over All . . . ft.	12	13½	14	16½	15½	18	16	18	16	18
“ of Fire Box . . . in.	50	56	56	62	62	68	62	68	68	74
Width “ “ “ “	42	42	48	48	54	54	60	60	66	66
Fire Doors, Single . . .	.....	.....	.....	.....	18x24	18x24	18x24	18x24	18x24	18x24
“ “ Double “ “	18x30	18x30	18x30	18x30	.....	.....	.....	.....	.....	.....
Approx. Weight of Boiler Complete with Cast. lbs.	7300	8100	9200	10500	13600	15000	16500	18000	19900	21400
Steam Outlet . . . . . in.	6	7	7	7	7	7	8	8	8	8
Return “ “ “ “	4	5	5	5	5	5	6	6	6	6
Water Tapping—Flow and Return, 2 Each. “	6	7	7	7	7	8	8	10	10	10
Size of Smoke Pipe . . . “	22	22	24	24	30	30	34	34	40	40
Rating Steam . . . sq. ft.	4000	4400	4800	6300	7200	8500	9700	10600	11800	13500
“ Water . . . . . “	6500	7100	8500	10100	11500	14000	15600	17100	18900	21600
Price, Steam Boiler Com- plete, with Castings	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
—no Trimmings . . each	680.00	735.00	860.00	935.00	1200.00	1310.00	1500.00	1600.00	1800.00	2000.00
Price, Steam Trim. . . extra	23.00	28.00	28.00	28.00	40.00	40.00	40.00	40.00	44.00	44.00
“ Water Boiler with Castings—no Trim. “	695.00	755.00	880.00	955.00	1225.00	1335.00	1530.00	1630.00	1840.00	2040.00

TRIMMINGS—as listed, include: One steam gauge, one water column with three gauge cocks and water gauge, one pop safety valve, one automatic draft regulator. One hoe and one poker furnished with each boiler.

Every boiler fitted with a safety fusible plug in crown sheet. Ash pit front provided with special lift door for automatic regulator.

Castings consist of ash pit front, fire door and frame, one large and four small soot doors and frames, and Acme Shaking Grates.

No extra charge made for hoe and poker shipped with boiler. Tubes inserted in fire box for domestic coil will be charged extra, 2.00 net. Boilers Nos. 15 to 20 have two single fire doors. Extra charge is made for furnishing coil openings in fire box.

Manholes in all boilers over 30 inches in diameter.

## SMITH'S MALTESE WATER HEATERS

No. 1—TAPPED REGULAR  
TOP AND REAR ARM



Fig. 7902A

No. 3—TAPPED SPECIAL  
TOP AND LEFT ARM



Fig. 7902C

No. 6—SHOWS THREE HEATERS  
OF DIFFERENT SIZES CONNECTED

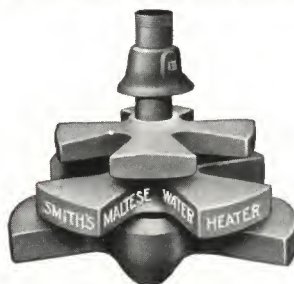


Fig. 7902E

No. 2—TAPPED SPECIAL  
TOP AND RIGHT ARM



Fig. 7902B

No. 4—TAPPED SPECIAL  
BOTH ARMS



Fig. 7902D

No. 7—SHOWS THREE HEATERS,  
SMALLEST CONNECTED AT BOTTOM



Fig. 7902F

These heaters can be connected together for any desired capacity. The  $\frac{3}{4}$  style is used as a bottom section when a number are coupled together.

Diam. of Boiler, In.	Height Inches	Tapped Inches	Full Size Sq. Ft. Rad.	Heat. Tank Gallons	PRICE, EACH	
					Full Size	$\frac{3}{4}$ Size
9	2	$\frac{3}{4}$	30	30	2.80	....
12	$2\frac{1}{2}$	1	50	50	3.80	3.30
15	3	2	75	75	6.00	5.00
18	3	$2\frac{1}{2}$	100	100	10.00	8.00
21	3	3	150	175	14.00	12.00
24	$3\frac{1}{2}$	3	200	225	18.00	16.00
27	$3\frac{1}{2}$	3	250	300	22.00	20.00
30	$4\frac{1}{4}$	$3\frac{1}{2}$	300	350	30.00	27.00

Two collars are sent with each heater.

Add .25 to net price when two arms are to be tapped.

In ordering, specify size and figure number of heater desired.

**CAST IRON RADIATORS**  
**TWO-COLUMN—FOR STEAM OR WATER**

ORNAMENTAL



Fig. 4138A

PLAIN



Fig. 4138B

**THREE-COLUMN—FOR STEAM OR WATER**

ORNAMENTAL

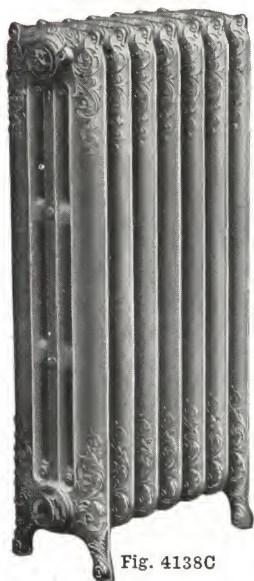


Fig. 4138C

PLAIN

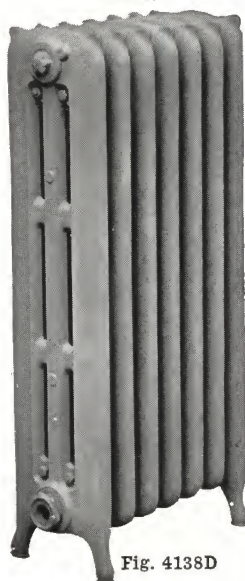


Fig. 4138D



### CAST IRON RADIATORS SINGLE-COLUMN—FOR STEAM OR WATER

No. of Sections	Length Inches	HEATING SURFACE, SQUARE FEET			
		38 In. High 3 Sq. Ft. per Section	32 In. High 2½ Sq. Ft. per Section	26 In. High 2 Sq. Ft. per Section	20 In. High 1½ Sq. Ft. per Section
2	5	6	5	4	3
3	7½	9	7½	6	4½
4	10	12	10	8	6
5	12½	15	12½	10	7½
6	15	18	15	12	9
7	17½	21	17½	14	10½
8	20	24	20	16	12
9	22½	27	22½	18	13½
10	25	30	25	20	15
11	27½	33	27½	22	16½
12	30	36	30	24	18
13	32½	39	32½	26	19½
14	35	42	35	28	21
15	37½	45	37½	30	22½
16	40	48	40	32	24
17	42½	51	42½	34	25½
18	45	54	45	36	27
19	47½	57	47½	38	28½
20	50	60	50	40	30
21	52½	63	52½	42	31½
22	55	66	55	44	33
23	57½	69	57½	46	34½
24	60	72	60	48	36
25	62½	75	62½	50	37½
26	65	78	65	52	39
27	67½	81	67½	54	40½
28	70	84	70	56	42
29	72½	87	72½	58	43½
30	75	90	75	60	45
31	77	93	77½	62	46½
32	80	96	80	64	48
Price.....per sq. ft.		.35	.38	.42	.48

In estimating length of radiator, allow ½ inch for each bushing.

Width of section, 4½ inches. Width of legs, 5¼ inches. Distance from floor to center of opening, 4½ inches.

In ordering, state if for steam or water.

## CAST IRON RADIATORS

## TWO-COLUMN—STEAM OR WATER

No. of Sections	Length Inches	HEATING SURFACE, SQUARE FEET					
		45 In. High 5 Sq. Ft. per Section	38 In. High 4 Sq. Ft. per Section	32 In. High 3½ Sq. Ft. per Section	26 In. High 2½ Sq. Ft. per Section	23 In. High 2¼ Sq. Ft. per Section	20 In. High 2 Sq. Ft. per Section
2	5	10	8	6⅔	5⅓	4⅔	4
3	7½	15	12	10	8	7	6
4	10	20	16	13⅓	10⅔	9⅓	8
5	12½	25	20	16⅔	13⅓	11⅔	10
6	15	30	24	20	16	14	12
7	17½	35	28	23⅓	18⅔	16⅓	14
8	20	40	32	26⅔	21⅓	18⅔	16
9	22½	45	36	30	24	21	18
10	25	50	40	33⅓	26⅔	23⅓	20
11	27½	55	44	36⅔	29⅓	25⅔	22
12	30	60	48	40	32	28	24
13	32½	65	52	43⅓	34⅔	30⅓	26
14	35	70	56	46⅔	37⅓	32⅔	28
15	37½	75	60	50	40	35	30
16	40	80	64	53⅓	42⅔	37⅓	32
17	42½	85	68	56⅔	45⅓	39⅔	34
18	45	90	72	60	48	42	36
19	47½	95	76	63⅓	50⅔	44⅓	38
20	50	100	80	66⅔	53⅓	46⅔	40
21	52½	105	84	70	56	49	42
22	55	110	88	73⅓	58⅔	51⅓	44
23	57½	115	92	76⅔	61⅓	53⅔	46
24	60	120	96	80	64	56	48
25	62½	125	100	83⅓	66⅔	58⅓	50
26	65	130	104	86⅔	69⅓	60⅔	52
27	67½	135	108	90	72	63	54
28	70	140	112	93⅓	74⅔	65⅓	56
29	72½	145	116	96⅔	77⅓	67⅔	58
30	75	150	120	100	80	70	60
31	77½	155	124	103⅓	82⅔	72⅓	62
32	80	160	128	106⅔	85⅓	74⅔	64
Price, per square foot		.35	.35	.38	.42	.44	.48

In estimating length of radiator, allow ½ inch for each bushing.

Width of section, 7¼ inches. Width of legs, 7½ inches. Distance from floor to center of opening, 4½ inches.

In ordering, state if for steam or water.

## CAST IRON RADIATORS

## THREE-COLUMN—FOR STEAM OR WATER

No. of Sections	Length Inches	HEATING SURFACE, SQUARE FEET					
		44 In. High 6 Sq. Ft. per Section	38 In. High 5 Sq. Ft. per Section	32 In. High 4½ Sq. Ft. per Section	26 In. High 3¾ Sq. Ft. per Section	22 In. High 3 Sq. Ft. per Section	18 In. High 2¼ Sq. Ft. per Section
2	5	12	10	9	7½	6	4½
3	7½	18	15	13½	11¼	9	6¾
4	10	24	20	18	15	12	9
5	12½	30	25	22½	18¾	15	11¼
6	15	36	30	27	22½	18	13½
7	17½	42	35	31½	26¼	21	15¾
8	20	48	40	36	30	24	18
9	22½	54	45	40½	33¾	27	20¼
10	25	60	50	45	37½	30	22½
11	27½	66	55	49½	41¼	33	24¾
12	30	72	60	54	45	36	27
13	32½	78	65	58½	48¾	39	29¼
14	35	84	70	63	52½	42	31½
15	37½	90	75	67½	56¼	45	33¾
16	40	96	80	72	60	48	36
17	42½	102	85	76½	63¾	51	38¼
18	45	108	90	81	67½	54	40½
19	47½	114	95	85½	71¼	57	42¾
20	50	120	100	90	75	60	45
21	52½	126	105	94½	78¾	63	47¼
22	55	132	110	99	82½	66	49½
23	57½	138	115	103½	86¼	69	51¾
24	60	144	120	108	90	72	54
25	62½	150	125	112½	93¾	75	56¼
26	65	156	130	117	97½	78	58½
27	67½	162	135	121½	101¼	81	60¾
28	70	168	140	126	105	84	63
29	72½	174	145	130½	108¾	87	65¼
30	75	180	150	135	112½	90	67½
31	77½	186	155	139½	116¼	93	69¾
32	80	192	160	144	120	96	72
Price per sq. ft. . .		.35	.35	.38	.42	.45	.50

In estimating length of radiator, allow ½ inch for each bushing.

Width of section, 9⅞ inches. Width of legs, 9½ inches. Distance from floor to center of opening, 4½ inches.

In ordering, state if for steam or water.



## CAST IRON RADIATORS

## FOUR-COLUMN—FOR STEAM OR WATER

No. of Sections	Length Inches	HEATING SURFACE, SQUARE FEET					
		44 In. High 10 Sq. Ft. per Section	38 In. High 8 Sq. Ft. per Section	32 In. High 6½ Sq. Ft. per Section	26 In. High 5 Sq. Ft. per Section	22 In. High 4 Sq. Ft. per Section	18 In. High 3 Sq. Ft. per Section
2	6	20	16	13	10	8	6
3	9	30	24	19½	15	12	9
4	12	40	32	26	20	16	12
5	15	50	40	32½	25	20	15
6	18	60	48	39	30	24	18
7	21	70	56	45½	35	28	21
8	24	80	64	52	40	32	24
9	27	90	72	58½	45	36	27
10	30	100	80	65	50	40	30
11	33	110	88	71½	55	44	33
12	36	120	96	78	60	48	36
13	39	130	104	84½	65	52	39
14	42	140	112	91	70	56	42
15	45	150	120	97½	75	60	45
16	48	160	128	104	80	64	48
17	51	170	136	110½	85	68	51
18	54	180	144	117	90	72	54
19	57	190	152	123½	95	76	57
20	60	200	160	130	100	80	60
21	63	210	168	136½	105	84	63
22	66	220	176	143	110	88	66
23	69	230	184	149½	115	92	69
24	72	240	192	156	120	96	72
25	75	250	200	162½	125	100	75
26	78	260	208	169	130	104	78
27	81	270	216	175½	135	108	81
28	84	280	224	182	140	112	84
29	87	290	232	188½	145	116	87
30	90	300	240	195	150	120	90
31	93	310	248	201½	155	124	93
32	96	320	256	208	160	128	96
Price. . per sq. ft.		.35	.35	.38	.42	.45	.50

In estimating length of radiator, allow ½ inch for each bushing.

Width of section, 12⅜ inches. Width of legs, 12⅝ inches. Distance from floor to center of opening, 4½ inches.

In ordering, state if for steam or water.

## WINDOW RADIATORS

ORNAMENTAL



Fig. 9428A

PLAIN



Fig. 9428B

Number of Sections	Length Inches	20 Inches High 5 Square Feet per Section	18 Inches High 4½ Square Feet per Section	16 Inches High 4 Square Feet per Section	14 Inches High 3½ Square Feet per Section
2	6	10	9	8	7
3	9	15	13½	12	10½
4	12	20	18	16	14
5	15	25	22½	20	17½
6	18	30	27	24	21
7	21	35	31½	28	24½
8	24	40	36	32	28
9	27	45	40½	36	31½
10	30	50	45	40	35
11	33	55	49½	44	38½
12	36	60	54	48	42
13	39	65	58½	52	45½
14	42	70	63	56	49
15	45	75	67½	60	52½
16	48	80	72	64	56
17	51	85	76½	68	59½
18	54	90	81	72	63
19	57	95	85½	76	66½
20	60	100	90	80	70
21	63	105	94½	84	73½
22	66	110	99	88	77
23	69	115	103½	92	80½
24	72	120	108	96	84
25	75	125	112½	100	87½
26	78	130	117	104	91
27	81	135	121½	108	94½
28	84	140	126	112	98
29	87	145	130½	116	101½
30	90	150	135	120	105
31	93	155	139½	124	108½
32	96	160	144	128	112

In estimating length of radiator allow ½ inch for each bushing.

Width of section is 12¾ inches.

Width of legs, 13 inches.

Distance from floor to center of opening, 3 inches.

## WALL RADIATORS, ETC.

9-FOOT WALL RADIATOR

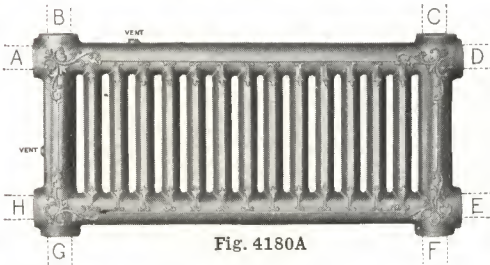


Fig. 4180A

hand tappings; D, E, F, and G are left-hand tappings.

These sections connected with  $1\frac{1}{2}$ -inch right and left-hand internal nipples, having two lugs, cast on the inside so that by the use of a nipple iron one of more sections may be added to or taken out independently of all other sections in the stack. The sections are made for two methods of interconnection, as follows: The vertical section in either size is tapped on the long sides of B, C, G and F, the horizontal section in either size is tapped on the short side at A, H, D and E. A, B, C, and H are right-

Size	No. of Square Feet	DIMENSIONS, INCHES			Price, per Square Foot
		Width	Length	Thickness	
Extra Large	9	14	$29\frac{1}{2}$	$2\frac{7}{8}$	.38
Standard	7	14	22	$2\frac{7}{8}$	.38

## PIN INDIRECT FOR STEAM OR WATER

In ordering end sections of indirects, state which end is desired where radiator is in same position as shown in illustration. If location of tappings is desired other than regular, as shown by C and F, we can furnish special tapping at A, B, D or E.

BOX BRACE IN USE

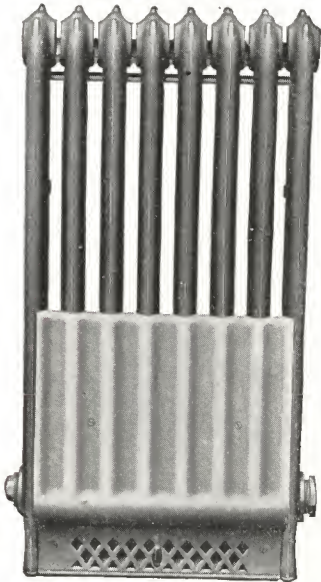


Fig. 4180C

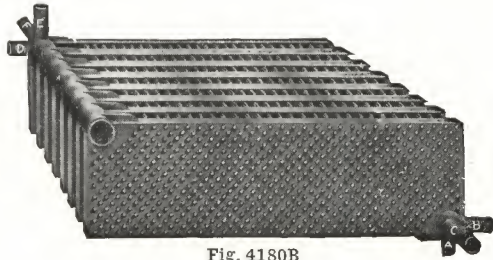


Fig. 4180B

Complete stack (sections are shipped assembled unless otherwise ordered). "Standard" or "extra large" size are tapped 2-inch and can be bushed if desired.

Size of Section, Feet	Length Inches	Width of Body, Inches	Width of Hub, Inches	Centers Inches
12	$41\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{3}{4}$	$23\frac{1}{4}$
20	$41\frac{1}{2}$	12	$14\frac{1}{8}$	3

Price, 25 cents per square foot.

## DIRECT-INDIRECT PORTABLE BOX BASE

This base is made to fit radiators of all heights in following patterns: One, two, three and four-column. These prices are to be added to the prices quoted for direct radiation.

Price, Base for 3 Section Radiator.....each					
"	"	"	4	"	1.20
"	"	"	5	"	1.60
"	"	"	6	"	2.00
"	"	"	7	"	2.40
"	"	"	8	"	2.80
"	"	"	9	"	3.20
"	"	"	10	"	3.60
"	"	"	11	"	4.00
"	"	"	12	"	4.40
"	"	"	"	"	4.80



## WALL RADIATORS

No. 1  
THREE HORIZONTAL SECTIONS IN  
THREE TIERS  
WATER OR STEAM



Fig. 8567A

No. 2  
THREE HORIZONTAL SECTIONS IN SINGLE TIER  
WATER OR STEAM

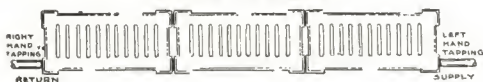


Fig. 8567B

No. 3  
FOUR VERTICAL SECTIONS IN SINGLE TIER  
WATER OR STEAM

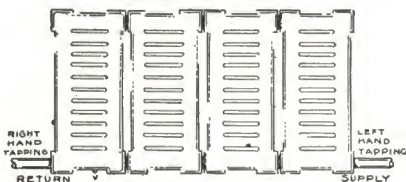


Fig. 8567C

No. 4  
FOUR VERTICAL SECTIONS IN FOUR TIERS  
WATER OR STEAM

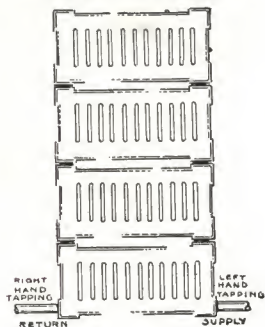


Fig. 8567D

No. 5  
FOUR HORIZONTAL SECTIONS IN TWO TIERS  
WATER OR STEAM

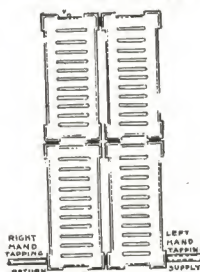


Fig. 8567E

No. 6  
FOUR VERTICAL SECTIONS IN TWO TIERS  
WATER OR STEAM

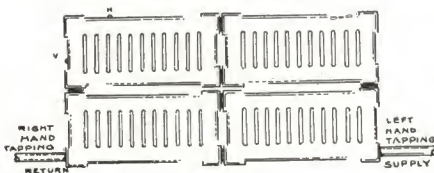


Fig. 8567F

## WALL RADIATORS

No. 7, THREE HORIZONTAL  
AND TWO VERTICAL SECTIONS WITH THREE  
TIERS IN CENTER—WATER OR STEAM

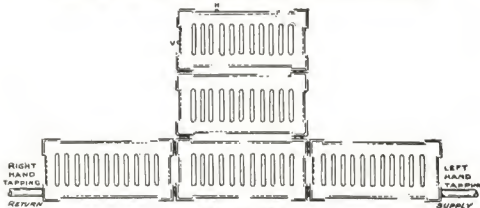


Fig. 8235A

No. 8, SIX VERTICAL SECTIONS  
IN THREE TIERS—WATER OR STEAM

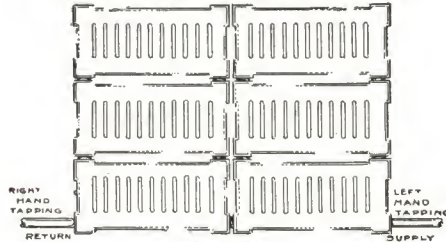


Fig. 8235B

No. 9, SIX HORIZONTAL SECTIONS  
IN TWO TIERS—WATER OR STEAM

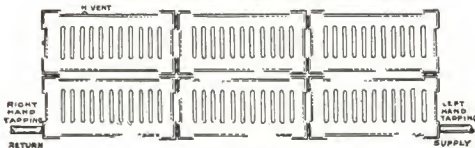


Fig. 8235C

No. 10, SIX HORIZONTAL SECTIONS  
IN THREE TIERS—WATER OR STEAM

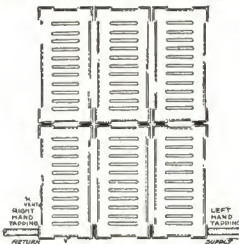


Fig. 8235D

### REGULAR TAPPINGS OF RADIATORS—DIRECT RADIATION ONE-PIPE STEAM—SUPPLY

Up to 24 Square Feet..... inches	1	Above 60, up to 100 Square Feet. inches	1½
Above 24, up to 60 Square Feet. " "	1¼	" 100 Square Feet. .... " "	2

### TWO-PIPE STEAM—SUPPLY AND RETURN

Up to 48 Square Feet..... inches	1 x ¾	Above 96 Square Feet..... inches	1½ x 1¼
Above 48, up to 96 Square Feet. " "	1¼ x 1	..... " "	.....

### HOT WATER—SUPPLY AND RETURN

Up to 40 Square Feet..... inches	1 x 1	Above 72 Square Feet..... inches	1½ x 1½
Above 40, up to 72 Square Feet. " "	1¼ x 1¼	..... " "	.....

Air tappings, ⅛-inch for direct radiation.

Vapor tappings, top and bottom opposite ends: Supply, ¾-inch; return, ½-inch.

All openings of direct radiators have right-hand threads.

Radiators are regularly tapped 2-inch and bushed according to the list above.

In estimating length of radiator allow ½ inch for each bushing.

## BRACKETS, ETC.

### BRACKETS FOR WALL RADIATORS

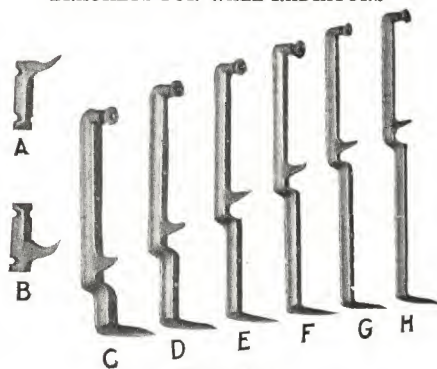


Fig. 10516A

### CONCEALED BRACKETS BOTTOM GUIDE



Fig. 10516B

Fig. 10516C

### CEILING BRACKET



Fig. 10516D

### PEDESTALS

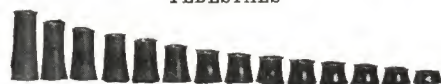


Fig. 10516E

### BRACKETS FOR WALL RADIATORS

Distance from floor to top of baseboard C—2¼, D—4¼, E—6¼, F—8¼, G—10¼, and H—12¼ inches.

Prices upon application.

### CONCEALED BRACKETS

Made for supporting single, two, three and four-column direct radiators. Prices upon application.

### CEILING BRACKETS

Made of 3¼-inch diameter cast plate drilled for four screws. Bolt gives a distance of 3½ to 5 inches from bottom of radiator to ceiling. Other length bolts can be furnished. Prices upon application.

### PEDESTALS

Made in following heights for any style radiator: ½, ¾, 1, 1¼, 1½, 1¾, 2, 2¼, 2½, 3, 3½, 4, 4½, 5 and 6 inches. Prices upon application.

### WALL BOX

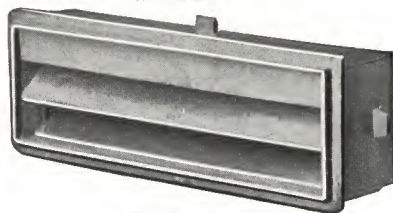


Fig. 10516F

### FLOOR DAMPER

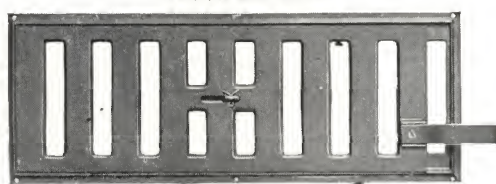


Fig. 10516G

### WALL BOXES

Made in one size only (5x17½ inches) to conform to brickwork. Copper wire screen. Price, each, 2.80.

### FLOOR DAMPERS

Size Number	SIZE, INCHES		To Fit Under Radiators	Size Number	SIZE, INCHES		To Fit Under Radiators
	Length	Width			Length	Width	
1	6	8¾	4-Section	6	28¼	8¾	13 and 14-Section
2	8¼	8¾	5 and 6-Section	7	32¼	8¾	15, 16 and 17-Section
3	13¼	8¾	7 " 8 "	8	38¼	8¾	18, 19 " 20 "
4	18¼	8¾	9 " 10 "	9	44¾	8¾	21 to 30-Section
5	23¼	8¾	11 " 12 "	....	....	....	.....



## AIR MOISTENERS FOR RADIATORS AND REGISTERS

### FOR RADIATORS

ORNAMENTAL DESIGN

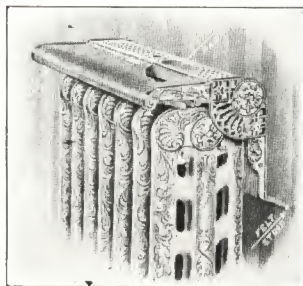


Fig. 9151A

PLAIN DESIGN

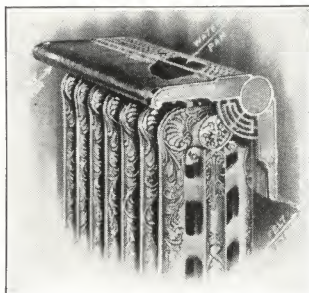


Fig. 9151B

They insure moist heat, which means comfortable heat, better health, and fewer colds. Designed also to protect the walls and ceiling from being blackened by the dust circulated by steam and hot water radiators. They are made of galvanized iron, fitted with a dust gutter, which positively catches and retains the dust circulated by the radiator. The gutter is so arranged that it can be readily cleaned by passing a damp cloth through it. They are fitted with a felt strip where the shields join the wall, which takes up any unevenness, making a perfectly tight joint.

In ordering, please advise us if the ornamental or plain design is wanted, and whether with or without water pan. Also, send for a measurement blank. Prices on application.

### FOR REGISTERS

ORNAMENTAL DESIGN

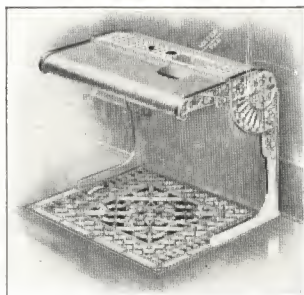


Fig. 9151C

PLAIN DESIGN

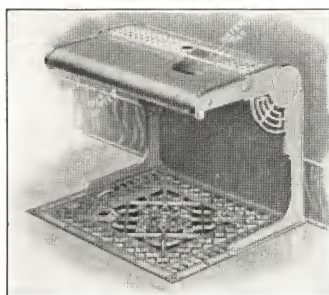


Fig. 9151D

These moisteners deliver the proper amount of moisture with the heat, directly into the room. They prevent colds and kindred ailments caused by living in dry, overheated houses.

Also designed to protect the walls and ceilings from becoming blackened from dirt and smoke; to prevent the wall paper from becoming discolored by heat from the registers of hot air furnaces. The gutter is cleaned in a very short time, the same as in the radiator shield. They are made to set directly on top of the registers, coming flush with the outside edge and are easily removed when not in use.

In ordering, all that is necessary, is to give the length of the register and advise us if wanted with or without the water pan and plain or ornamental. The last is important as they are furnished either way. Prices on application.

**RADIATOR BRONZE, ETC.****RADIATOR  
BRONZE**

Fig. 9003A

**BRONZING LIQUID**

Fig. 9003B

**RADIATOR ENAMEL**

Fig. 9003C

**RADIATOR BRONZE**

Superior bronze powder, put up in screw top cans containing one pound.

Pale Gold, Rich Gold and Copper .....	per pound	1.50
Aluminum .....	"	2.20
Colors .....	"	2.20

Send for bronze color card.

**BRONZING LIQUID**

Superior quality bronzing liquid put up in quarts, half gallon and gallon patent stopper cans.

Price .....	per quart	.90
" .....	per half gallon	1.40
" .....	per "	2.20

**RADIATOR ENAMEL**

Superior quality radiator enamel put up in pints, quarts, half gallon and gallon cans.  
Colors: Alabaster, cream, medium blue, silver gray, sea green, Nile green, apple green, bronze green, gobelin, oak brown, terra cotta, maroon, ebony, vermilion and white.

Price, except Vermilion and White .....	per pint	1.00
" " " " " .....	per quart	1.50
" " " " " .....	per half gallon	2.20
" " " " " .....	per "	4.00
" Vermilion and White .....	per pint	1.10
" " " " " .....	per quart	1.70
" " " " " .....	per half gallon	3.00
" " " " " .....	per "	5.40

**MAROON JAPAN**

Superior quality maroon japan put up in pints, quarts, half gallon and gallon cans.

Price .....	per pint	.70
" .....	per quart	1.00
" .....	per half-gallon	1.50
" .....	per "	2.50

**BRONZE AND ENAMEL PRIMER**

This primer acts as a filler and furnishes a smooth surface upon which to apply the finishing coat. Put up in quart, half gallon and gallon cans.

Price .....	per quart	1.50
" .....	per half gallon	2.30
" .....	per "	3.90

**STEAM FITTERS' ASPHALTUM**

Put up in gallon and 5-gallon cans.

Price .....	per gallon	1.70
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## THE IMICO VAPOR VACUUM HEATING SYSTEM

We believe the Imico Vapor Vacuum Heating System to be the most improved and up-to-date method of heating. The old steam heating system has many advantages and it was thought when the more recent forms of hot water installations were perfected that we had then discovered an ideal system for the transmission of heat in small quantities from the generator (such as a boiler or furnace) to the distributors; in other words, the radiators placed in the various rooms of a building.

We know that a steam heating system, or a hot water heating system, if properly installed, cannot fail to give good results. We do not for a moment gainsay the advantages of either type of installations, but we believe that we can secure economy of fuel by using vapor as a heating medium, increasing efficiency by the use of the Dewey Tri-Duty Air and Vacuum Trap.

The term "vapor," used in relation to a vapor heating system, means the vapor arising from hot water—rising naturally—as distinguished from circulation in steam arising under pressure. A perfect vapor heating system means vapor in the radiators without any pressure. The gauge at the boiler will show a pressure from 1 to 5 ounces, and that is needed solely for the purpose of operating the damper regulator.

The advantages of the Imico Vapor Vacuum Heating System are many: It is easy to install and comparatively economical, as a saving is made by reducing the size of the pipes, fittings and valves; it needs no condensing coil and it positively will not water-log; no mechanical pumps, ejectors or other devices are required; there are no air valves on the radiators in the room, avoiding the danger of dripping water and getting rid of the annoyances of foul and hissing air valves. The whole system provides rapid circulation, noiseless and automatic operation and there is no danger of freezing. There is a saving in the size of radiators as compared with water; there is perfect control of temperature in every room by simply turning on graduated valve at the radiator, which is adjusted according to climatic conditions.

The Imico Vapor Vacuum Heating System can be used in all sizes and kinds of buildings—large or small—whether residences, factories, warehouses, public auditoriums, theaters, or churches, and the efficiency of old heating systems can be greatly increased by equipping them with the Imico Vapor Vacuum Heating devices.

The Imico Vapor Vacuum Heating System can be used on any steam boiler, whether same be made of cast iron or steel, or can be installed on any power or central heating plant; of course, on high pressure lines, installing also the pressure regulator that would be necessary to reduce from high to low pressure.

### OPERATION OF THE IMICO VACUUM HEATING SYSTEM

Water is admitted to the boiler to the proper level, as indicated by water column and water gauge glass of boiler, and the fire is started heating the water and in a short time the water is converted into vapor.

In the Imico Vapor Vacuum Heating System the vapor rises into the supply pipes, passes through the branches, enters the risers and fills the radiators through the graduated valves.

It is the aim of expert heating engineers to secure an even distribution of vapor through the entire system. To do this, however, it is necessary to expel the air, filling the system with vapor, and it is at this point that the Dewey appliances begin to operate.

The principle on which the Dewey Tri-Duty Air and Vacuum Trap eliminates air is very simple. There is a connection from the supply pipe or pressure side of the boiler, to the diaphragm and under normal conditions this diaphragm is closed. When the fire is started and the air in the boiler is expanded, the diaphragm is inflated and opens the vacuum valve, making a direct opening through the trap to the atmosphere. The valve remains open as long as there is a fraction of an ounce pressure on the boiler, unless the vapor having passed through the entire system is forced into the float chamber, which instantly closes against vapor. If water should be forced up the return pipe, the float rises in the chamber and closes, remaining closed until water recedes, then it opens and commences venting air again.



## THE IMICO VAPOR VACUUM HEATING SYSTEM

When the Dewey Tri-Duty Air and Vacuum Trap is used, there is absolutely no chance of there being any back pressure on the radiators. The Dewey Valve or Trap will close against either steam or water and close against the return of air into the system.

In the Imico Vapor Vacuum Heating System vapor is obtained automatically without pump operation, the principle being that a cubic foot of steam at low pressure when admitted into radiation becomes condensed while transmitting its heat through the radiator and shrinks to 1 cubic inch of water. This creates an almost complete vacuum. By using vapor condensation, perfect circulation and efficiency is secured as under 10 inches of vacuum, a pull of 5 pounds per square inch is exerted to draw the vapor from the boiler into the radiation. Water will boil under this vacuum at 190° Fahr., and this is just the reason why economy in coal consumption is secured. **The lower the temperature at which you can convert the water into vapor the smaller will be your coal bill.**

The Imico Vapor Vacuum Heating System does not use any excess fuel to raise pressure to force the heat through the radiation. **More coal saved.** The perfect circulation that is secured and the vacuum created by condensing steam or vapor, creates suction and pulls the vapor from the boiler into the system.

As stated before there cannot be any back pressure, as there is an opening from the return to the atmosphere until the vapor or water comes to the trap, closing the trap and keeping it closed until the vapor or water recedes; then it commences venting air again unless there is no air in the system or there is no vapor being given off from the boiler, at which time the automatic trap closes and holds the vacuum, making a vacuum job in every sense of the word.

By this method the radiators continue to give off heat until the fire has nearly gone out, thus securing the greatest fuel economy. If occasion demands that the amount of heat required be increased and fresh fuel is put on the fire, your heating system responds instantly and develops its maximum capacity at once. The valves of the radiators should be of the graduated type, using the ordinary return elbows. No air valves are needed on the radiators, nor are any traps required for each individual radiator.

The radiators for the Imico Vapor Vacuum Heating System may be the same size as for steam, but an increase of 10 per cent more radiation than that figured for the ordinary steam job will promote economy in the consumption of coal. Either steam or water radiation may be used, tapped at the top, the one heating from end to end, while the other heats from top to bottom of sections. Use a regular safety valve and control the fire by a well balanced damper regulator.

### SCHEDULE—SUPPLY MAIN SIZES IMICO VAPOR VACUUM SYSTEM

1½	-inch will supply	200 feet to	400 feet Radiation
2	" " "	400 " "	700 " "
2½	" " "	700 " "	1100 " "
3	" " "	1100 " "	1500 " "
3½	" " "	1500 " "	2000 " "
4	" " "	2100 " "	3000 " "
5	" " "	3000 " "	5000 " "

### SCHEDULE FOR PIPE SIZE—RETURNS

1	-inch at boiler will return	200 feet to	700 feet Radiation
1¼	" " " " "	700 " "	1110 " "
1½	" " " " "	1100 " "	2100 " "
2	" " " " "	2100 " "	5000 " "

### IMICO VAPOR VACUUM RADIATION, TAPPING SIZES

Size of pipe supply:			
Radiation	90 square feet or less	¾-inch pipe and	¾-inch graduated valve.
"	90 feet to 150 feet	1 " " " "	¾ " " " "
"	150 " " 300 square feet	1¼ " " " "	1 " " " "

## THE IMICO VACUUM HEATING SYSTEM

DEWEY QUICK VENT AIR VALVE

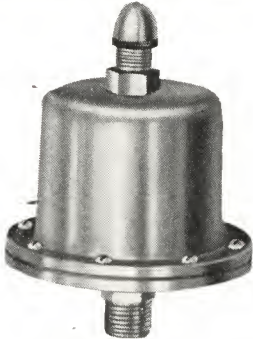


Fig. 9225A

DEWEY VACUUM VALVE

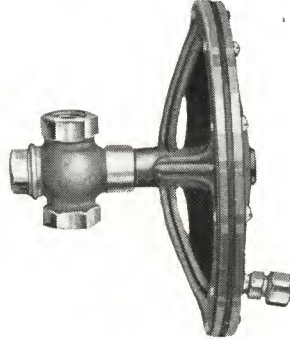


Fig. 9225B

The Dewey Quick Vent Air Valve is for use where pressure does not exceed 10 pounds. It will close against steam or water and will pass all the air that will go through  $\frac{1}{4}$ -inch pipe and is intended for use where vacuum is not a factor. Price..... 20.00

The Dewey Vacuum Valve is suitable for heating systems containing not more than 1500 square feet of radiation. Price..... 20.00

DEWEY TRI-DUTY AIR AND VACUUM TRAP

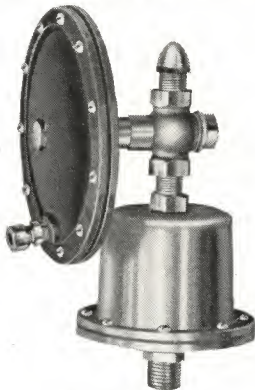
DEWEY DUPLEX  
TRI-DUTY AIR AND VACUUM TRAP

Fig. 9225C

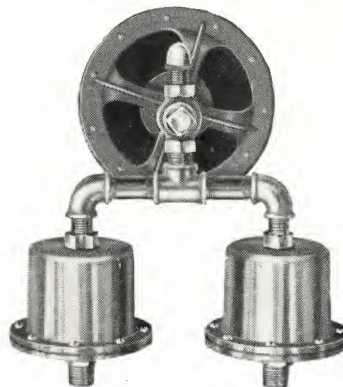


Fig. 9225D

The Dewey Tri-Duty Air and Vacuum Trap is suitable for heating systems containing not more than 1500 square feet of radiation. Price..... 36.00

The Dewey Duplex Tri-Duty Air and Vacuum Trap is for jobs with two or more circuits and is made up of a steam and water trap on each circuit and one vacuum valve on the whole system—a good arrangement for large jobs. This trap is suitable for heating systems containing not more than 3000 square feet of radiation. Price..... 56.00

**SPECIAL NOTE.**—The Dewey Vacuum Valve can be arranged in combination with practically any number of quick vent air valves so as to meet the demands of any heating system, no matter how large.

Price for venting heating systems containing more than 3000 square feet of radiation will be furnished on application.

## THE IMICO VAPOR VACUUM HEATING SYSTEM

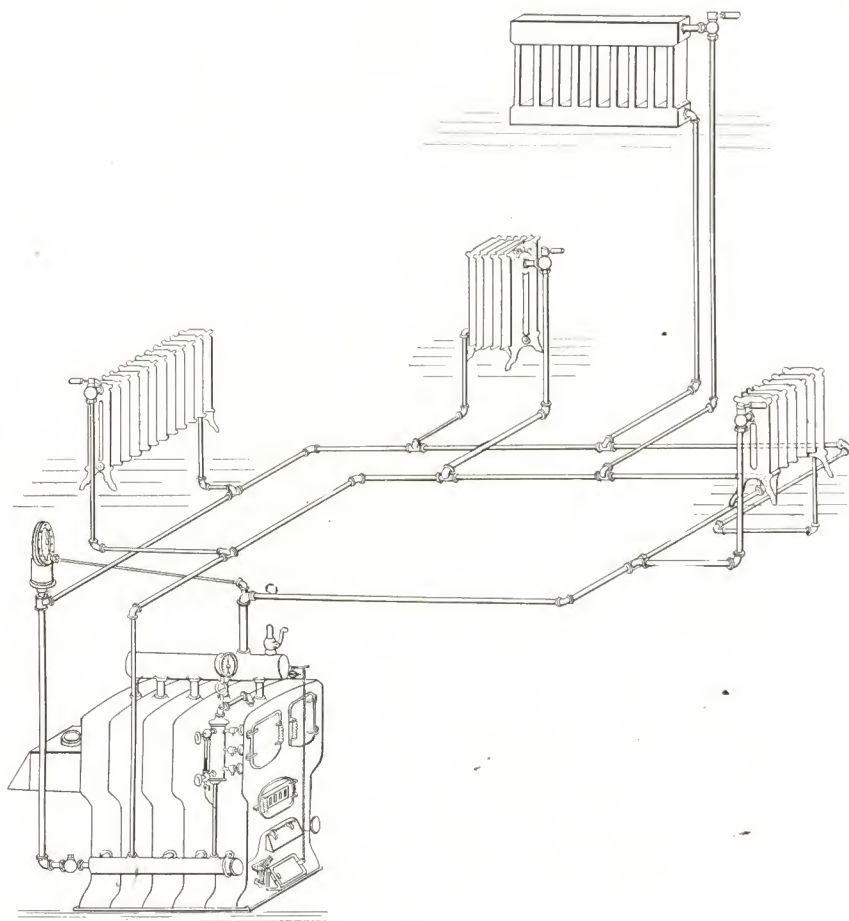


Diagram showing proper installation of Dewey Tri-Duty Air and Vacuum Trap.



## CHICAGO HEAT REGULATORS

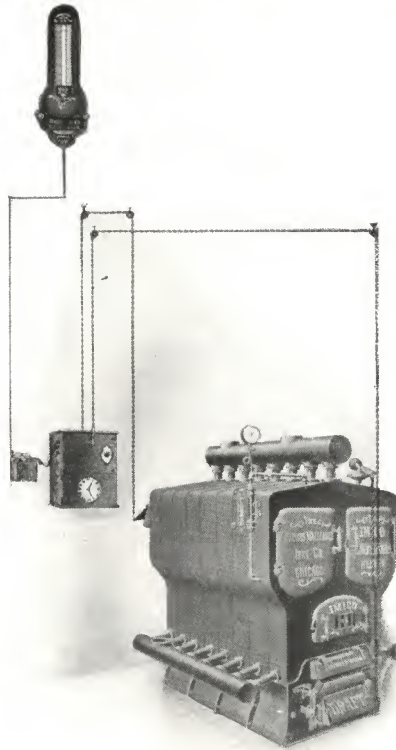


Fig. 9795A

These regulators are for the automatic regulation of temperature in dwellings and can be attached to any heating system.

The temperature is controlled by a thermostat of special design, located in a living-room; which by means of an electrical connection operating on a powerful motor, automatically opens and closes the dampers, as the temperature at the thermostat rises or falls either way from the point at which it has been set; and which may be any point between 60 and 80 degrees.

The time set, indicated by the clock in motor box, is an attachment whereby the temperature may be reduced and fire held in check during the night.

Price, No. 1, with Time Set .....	each	35.00
" " 2, without Time Set.....	"	30.00

The illustration above shows the Chicago Heat Regulator attached to a heating boiler.

## DEWEY THERMOSTAT AND CONTROL

### THE DEWEY AUXILIARY HOT WATER THERMOSTAT

Can be used in connection with any electric thermostat on hot water heating system using the same thermometer and the same motor as now in use.

It will double the efficiency of hot water heating jobs and prevents water getting too hot or boiling over. The temperature in the heater is controlled according to climatic conditions.

Price, including electrical heat regulator with time-set attachment and Dewey Auxiliary Hot Water Thermostat, 50.00.

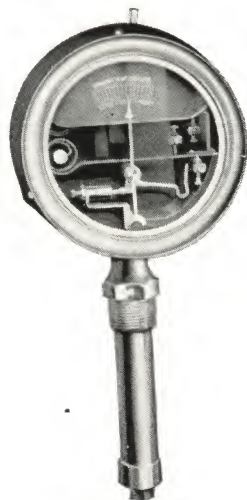


Fig. 4092A

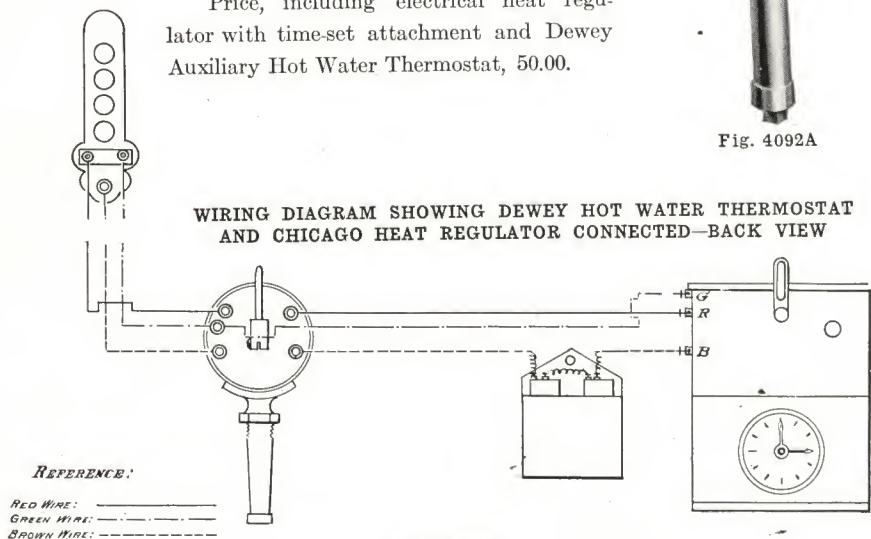


Fig. 4092B

### DEWEY THERMOSTAT CONTROL

(Not Illustrated)

For tank heaters on domestic supply, used in residences, flat buildings, hospitals, gymnasiums, etc., where steady temperatures are desired. Also used to control steam heater storage tanks operating balance valve. Is absolutely automatic and can be furnished in either angle or straight shank.

Price, Dewey Thermostat Control, including thermostat, 40.00. Balance valve is extra.

## RADIATOR VALVES

WITH UNION

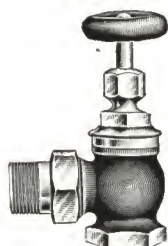


Fig. 1805A

LEFT-HAND CORNER  
WITH UNION

Fig. 1805B

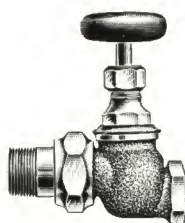
LEFT-HAND OFFSET  
WITH UNION

Fig. 1805C

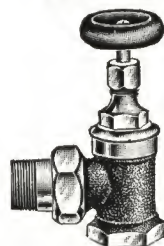
HOT WATER  
WITH UNION

Fig. 1805D

### UNION VALVES—JENKINS DISC

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Finished Trimmings.....each		2.75	3.50	4.30	5.85	7.75	12.85
“ “ “ Nickel-plated Trimmings.. “		3.00	3.75	4.65	6.25	8.00	12.85
“ “ “ “ All Over “		3.05	3.80	4.75	6.40	8.10	13.10
“ Finished Body..... “		3.25	4.00	4.80	6.40	8.75	13.85
“ “ “ Nickel-plated All Over.... “		3.50	4.25	5.25	7.00	9.25	14.35

### CORNER VALVES, RIGHT OR LEFT, WITH UNION—JENKINS DISC

Size .....	inches	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Finished Trimmings.....each		3.85	4.75	6.45	8.55	13.85
“ “ “ Nickel-plated Trimmings... “		4.15	5.15	6.90	8.80	14.15
“ “ “ “ All Over.... “		4.20	5.25	7.05	8.95	14.45
“ Finished Body..... “		4.50	5.50	7.20	9.55	15.35
“ “ “ Nickel-plated All Over.... “		4.85	6.00	7.80	9.95	15.95

### OFFSET VALVES, WITH UNION—JENKINS DISC

Size .....	inches	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Plated All Over.....each		4.25	5.15	6.95	8.95	14.25
“ Finished All Over..... “		4.40	5.30	7.05	9.65	15.25
“ “ and Plated All Over..... “		4.80	5.70	7.45	10.05	15.65

Above valves fitted with lock and shield at same list. Keys extra.

### HOT WATER VALVES, WITH UNION—BRASS DISC

Size .....	inches	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Finished Trimmings.....each		2.45	3.25	4.50	6.50	10.00
“ “ “ Nickel-plated Trimmings.. “		2.60	3.35	4.90	6.65	10.25
“ “ “ Plated All Over..... “		2.85	3.65	5.05	7.10	10.55
“ Finished All Over..... “		3.00	3.85	5.25	7.50	11.50
“ “ and Plated All Over..... “		3.40	4.30	5.80	8.10	12.35

### RADIATOR UNION ELBOWS

Size .....	inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, Rough Body, Plated All Over.....each		1.75	2.00	2.50	3.20	4.00	7.00
“ Finished All Over..... “		1.90	2.20	2.75	3.60	4.60	7.50
“ “ and Plated All Over “		2.15	2.40	3.00	3.90	4.85	8.50
“ Rough Body, Plain..... “		1.50	1.75	2.25	2.95	3.70	6.00
“ “ “ Plated Trimmings... “		1.65	1.90	2.40	3.10	3.85	6.15

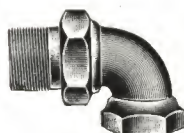


Fig. 1805E





## PACKLESS RADIATOR VALVES

### LAVIGNE, WITH COMPOSITION DISC, FOR STEAM

REGULAR PATTERN GRADUATED PATTERN

SECTIONAL VIEW

LOCK SHIELD

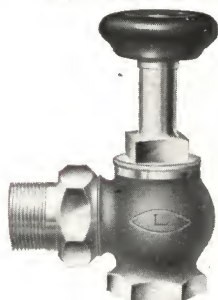


Fig. 8617A

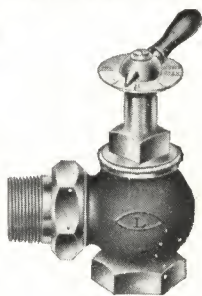


Fig. 8617B

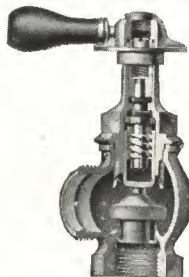


Fig. 8617C

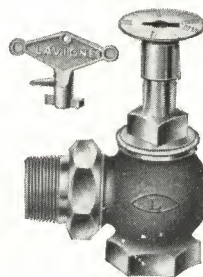


Fig. 8617D

The Lavigne Packless Valve has a number of decided advantages over any other article of its class. Its packless and quick-opening features are simple and efficient and the interior arrangement cannot be injured by ordinary abuse. The bonnet is carried up to the underside of the follower plate to protect the working parts from any outside interference.

By reference to the sectional view, it will be observed that the stem is of the non-rising type and is provided with a flange a short distance above the thread. Between this flange and the inwardly extending flange of the bonnet is placed a specially prepared composition washer. Another similar washer is placed immediately above the inwardly extending flange of the bonnet, and upon this second composition washer rests a gland shaped follower plate extending from the handle. A shoulder is formed on the inside of the follower plate and this shoulder supports a spring which bears upward against a nut screwed to the top of the stem. A double service is performed by this spring, as it bears downward on the upper composition washer and at the same time pulls upward against the lower composition washer, thus holding both of them tightly against the inwardly extending flange of the bonnet and taking up automatically any wear that may occur in either. This insures an absolutely tight joint against water, steam or air.

The valve also has a genuine quick-opening feature, as it can be fully opened or fully closed with about a three quarter turn of the handle.

The Lavigne Graduated Packless Valve is similar in construction to the valve illustrated and described above, except that it has the additional advantage of a lever handle, an indicator plate graduated into eight sections and means for a special adjustment by which each valve can be accurately set for a wide range of sizes of radiators.

With each graduated valve is furnished four different shells, any one of which may be attached to the disc holder below the disc. If the valve is to be connected to a very small radiator, the shell with a single slot should be used, while if the radiator is medium or large sized, shells with two, three or four slots should be employed. It will remain partly open at any desired position, without any danger of variation of the openings unless the handle is moved.

#### WITH UNION—ROUGH BODY, PLATED ALL OVER

Size.....inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, Regular Pattern, Angle .....each	3.15	3.80	4.75	6.40	8.10	13.10
“ “ “ Corner ..... “	3.45	4.20	5.25	7.05	8.95	14.45
“ “ Graduated “ Angle, with Shells.. “	4.00	4.80	5.85	7.65	9.50	15.00
“ “ “ Corner, “ “ .. “	4.30	5.20	6.35	8.30	10.35	16.35
“ “ “ Angle, without “ “ .. “	3.75	4.50	5.50	7.25	9.00	14.30
“ “ “ Corner, “ “ .. “	4.05	4.90	6.00	7.90	9.85	15.65

Upon special order, the above valves can be furnished with lock shield. Plated keys, 50 cents list each, extra.

Unless otherwise specified, graduated valves will be shipped with shells.



## HONEYWELL "UNIQUE" HOT WATER RADIATOR VALVES

POSITION OF VALVE  
RADIATOR  
TURNED ON

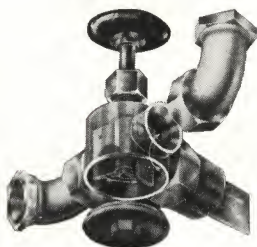


Fig. 1433A

The "Unique" Valve is designed to be connected to only one end of a radiator. By its use it is only necessary to extend the risers through the floors to the valve elbows. This avoids taking up flooring and cutting joists in order to extend return pipe to the other end of the radiator. The "Unique" Valve thus saves pipe, saves labor, saves weakening floor supports, saves leaks between floors and ceilings.

The valve, as will be noticed, has an adjustable elbow on each side, permitting connections to pipe from any direction. When attached to the radiator a thin piece of metal extends through the first radiator section. This diaphragm causes the water entering through one side to rise in the first section, circulate across the top, down through the other sections and out on other side of valve. It also insures a most rapid circulation, as there are no conflicting currents of water in the radiator. The construction of the "Unique" Valve is very simple and it cannot get out of order. The gates divert the flow of water into the radiator on one side of the diaphragm and allow it to return through the other side.

By a one sixth turn of the valve handle the position of the gates is so changed that the opening to radiator is closed and a by-pass formed in the valve, the full area of the piping, a feature that can hardly be overestimated. The flow of water is then directly through the valve body and piping. There is a continuous circulation through the piping and valve body, even though the radiator be turned off. The instant the valve is opened hot water enters the radiator.

Small openings provided in the gates, allow sufficient water to flow through the radiator to prevent freezing even in the coldest weather, when the radiator is turned off.

"Unique" Valves are made of the best valve metal and by skilled mechanics. The valves are symmetrical in design and bear the highest finish. "Unique" Valves are especially desirable for connecting radiators on second and higher floors.

The valve elbows are on right centers for risers, making it only necessary to bore holes through the floor. Where hot water heating is installed in old buildings having hard-wood floors, this feature is most appreciated.

POSITION OF VALVE  
RADIATOR  
TURNED OFF

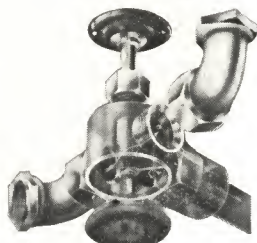


Fig. 1433B

Size.....	inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Center of Body to End of Spud.....	inches	$2\frac{7}{8}$	$2\frac{7}{8}$	3	$3\frac{1}{4}$
“ to Center of Ells.....	“	$5\frac{1}{2}$	$5\frac{3}{4}$	7	$7\frac{1}{2}$
“ of Spud to Bottom of Ells.....	“	$1\frac{7}{8}$	$1\frac{7}{8}$	2	$2\frac{5}{8}$
Radiators should be Tapped for Valve.....	“	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price.....	each	4.25	5.40	5.80	7.95



## RADIATOR AIR VALVES

No. 4  
LOCK AND SHIELDNo. 3  
WOOD WHEEL

Fig. 10238A



Fig. 10238B

AUTOMATIC

No. 2



Fig. 10238C

No. 4



Fig. 10238D

ORIGINAL  
MARSH-PAUL

Fig. 10238E

Size .....	inches	$\frac{1}{8}$	$\frac{1}{4}$
Price, No. 3, Wood Wheel with Nose .....	each	.70	.75
" " 4, Lock and Shield with Nose .....	"	.57	....
" " 2, Automatic .....	"	1.25	....
" " 4, " Male or Female .....	"	2.00	2.00
" Original Marsh-Paul, Automatic Drain Pipe .....	"	1.25	....

Keys for No. 4, plated, each, 18 cents.

No. 1

HOFFMAN

EXTERIOR



Fig. 10238F

SECTIONAL



Fig. 10238G

No. 2



Fig. 10238H

No. 6



Fig. 10238J

The expansible medium of these valves is a volatile or heat sensitive fluid which is contained in a sealed metal chamber having a flexible bottom of phosphor-bronze. They are made in styles for every service.

## No. 1

No. 1 Hoffman Siphon Air Valve distinguishes positively between steam or water and air, closing tight against steam or water emission, but freely vents all air from the radiator.

Price ..... each 1.90

## No. 2

No. 2 Hoffman Siphon Air and Vacuum Valve functions in every way the same as valve No. 1, but after the air is once out it keeps it out.

Price ..... each 4.50

## No. 6

No. 6 Hoffman Quick Vent "Float" Air and Vacuum Valve, for quick vent service where it is desired to control or prevent the emission of either steam or water through the valve, and also to prevent return of air to stack or line to which valve is connected. Vent port,  $\frac{1}{16}$  inch; can be made  $\frac{3}{16}$  inch when pressure is not over 3 pounds.

Price ..... each 12.00

## RADIATOR AIR VALVES AND VENTS

**LIBRA AUTOMATIC  
FOR VENTING  
STEAM RADIATOR**

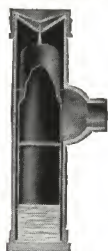


Fig. 6316A

**NORWALL  
OPEN**



Fig. 6316B

**AUTOMATIC**

**ALLEN  
CLOSED**



Fig. 6316C

Price, Libra Automatic, $\frac{1}{8}$ -inch.....	each	1.00
" Norwall Automatic, $\frac{1}{8}$ -inch.....	"	1.30
" Allen Automatic, $\frac{1}{8}$ -inch.....	"	1.00

**ARCO AUTOMATIC**

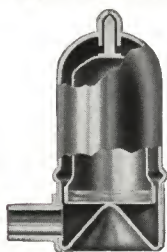


Fig. 6316D

**NORWALL SIPHON**



Fig. 6316E

**SYLPHON  
QUICK VENT**



Fig. 6316F

Price, Arco Automatic .....	each	1.00
" Norwall Siphon .....	"	1.70
" Syphon Quick Vent Valves, $\frac{1}{4}$ -inch Valve Connections; $\frac{3}{32}$ -inch Vent Port .....	"	3.00

## SYLPHON VENT VALVES

**No. 525**

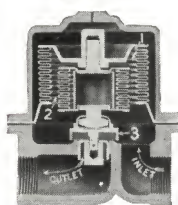


Fig. 6316G

**No. 526**

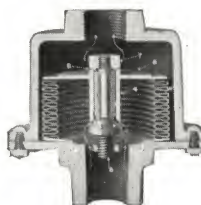


Fig. 6316H

**No. 528**

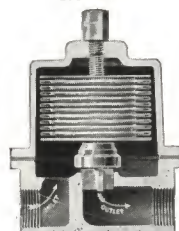


Fig. 6316J

Price, Syphon Vent Valves, No. 525, 1-inch Inlet and Outlet.....	each	15.00
" " " " " 526, 1 " " " " " .....	"	10.00
" " " " " 528, 1 " " " " " .....	"	12.50

## EXPANSION TANKS, ETC.

## EXPANSION TANKS

GALVANIZED

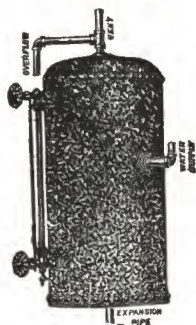


Fig. 6816A

WOOD, AUTOMATIC

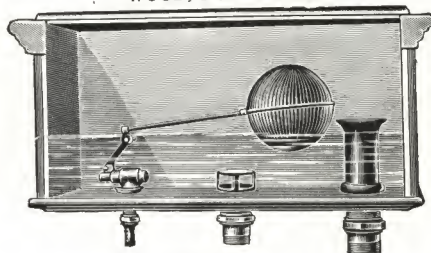


Fig. 6816B

## GALVANIZED EXPANSION TANKS—LESS GAUGE

Capacity .....	gallons	8	10	12	15	18	20	24	26	32	42
Diameter .....	inches	10	12	12	12	12	14	14	16	16	16
Height .....	"	20	20	24	30	36	30	36	30	36	48
Suitable for Radiation .....	square feet	250	300	400	500	600	700	900	950	1300	2000
Price .....	each	7.50	8.00	8.50	9.00	9.50	12.50	13.00	14.00	15.00	16.50

## AUTOMATIC EXPANSION TANKS

Price, Square Corners, Plain Oak, Varnished, with Couplings .....	each	8.50
" Round Corners, Plain Oak, Varnished, with Couplings .....	"	9.00

Genuine cherry, walnut or quarter-sawed oak, extra, 1.25 net.

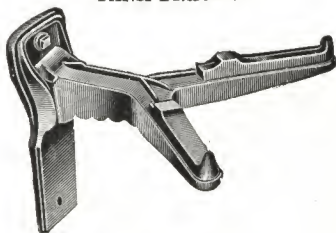
IDEAL EXPANSION  
TANK BRACKET

Fig. 6816C

IDEAL SPUD WRENCHES

No. 1

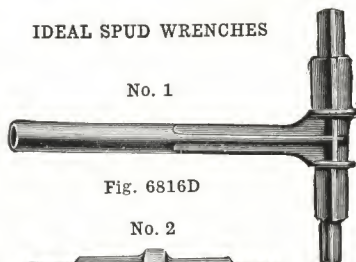


Fig. 6816D

No. 2



Fig. 6816E

## IDEAL EXPANSION TANK BRACKETS

Price, taking Tanks 10 to 16 inches in diameter .....	each	1.75
---	------	------

## IDEAL SPUD WRENCHES

Number .....	1	2
Price, embracing 3/4, 1, 1 1/4 and 1 1/2-inch Sizes .....	.75	.50

No. 1 spud wrench has an open hexagon on end of handle. No. 2 is used with a wrench.



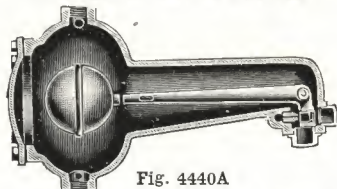
**WATER FEEDERS, DAMPER REGULATORS, ETC.****AUTOMATIC WATER FEEDER**

Fig. 4440A

**LOW PRESSURE DAMPER REGULATOR**

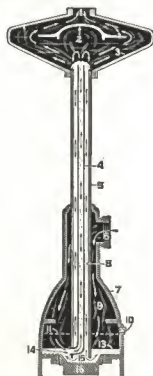
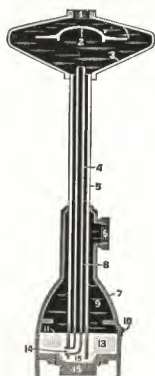
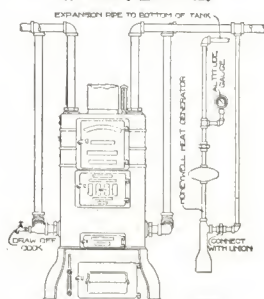
Fig. 4440B

**AUTOMATIC WATER FEEDERS AND DAMPER REGULATORS**

Price, Automatic Water Feeders with Immersed Valve.....each	20.00
" " " " " " " and Gauge....."	24.00
" Low Pressure Damper Regulator, Single Lever....."	4.50
" Extra Rubber Diaphragms....."	.75

**HONEYWELL HEAT GENERATORS**

POSITION OF MERCURY AND WATER WHEN GENERATOR IS PRODUCING NO PRESSURE  
 POSITION AND ACTION OF MERCURY AND WATER WHEN GENERATOR IS IN COMPLETE OPERATION PRODUCING 10 POUNDS PRESSURE

**SHOWING GENERATOR ATTACHED TO HOT WATER BOILER**

These generators are designed to meet the demand for a device to quicken the circulation in hot water heating jobs. When connected to the expansion pipe of an ordinary gravity plant, this generator seals the circuit and permits the generation of a slight pressure up to 10 pounds, at which point it relieves itself through the operation of a mercury seal, eliminating any element of danger.

The pressure created by this generator will remedy any unsatisfactory job of hot water heating where the radiation is insufficient, the piping too small for gravity, the circulation sluggish, causing large fuel consumption, or where the water boils easily from quick firing, providing, of course, the boiler is large enough to supply the heat. It greatly improves jobs which contain long horizontal mains, or where the radiation is all on the first floor.

In new work it permits a 10 per cent reduction in radiation, and smaller piping as advocated in the Honeywell system, the system of low cost and high efficiency. It is positive and automatic, is sold under the strongest guarantee, will last a lifetime, and cannot get out of order.

Number .....	1	2	3	4
For Radiation .....	1200	2500	3500	10000
Size of Inlet .....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$
" " Outlet .....	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$
Price .....	25.00	35.00	50.00	65.00

## FLUE CLEANERS AND BRUSHES

### ENGINEERS' FAVORITE TUBE SCRAPER

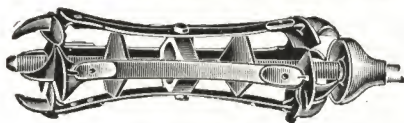


Fig. 9168A

### ELLIPTICAL TUBE SCRAPER



Fig. 9168B

Size.....inches	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	4
Price, Engineers' Favorite...each	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00
" Elliptical..... "	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00

### SPIRAL FLAT WIRE BRUSH

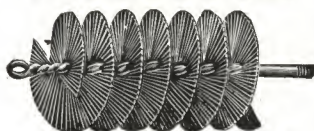


Fig. 9168C

### ROUND WIRE BRUSH

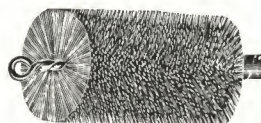


Fig. 9168D

### SPIRAL FLAT WIRE BRUSHES

Price, Spiral Flat Wire Brushes, Sizes 1 to 6 inches.....per inch	.50
---	-----

### ROUND WIRE BRUSHES FOR FIRE BOX BOILERS

Price, 2, 2 $\frac{1}{2}$ , 3, 3 $\frac{1}{2}$ or 4-inch.....each	1.00
---	------

### WIRE BRUSHES FOR HEATING BOILERS

No. 1904



Fig. 9168E

EXPORT



Fig. 9168F

OVAL



Fig. 9168G

Price, No. 1904, 4 $\frac{1}{2}$ x4x1 $\frac{3}{4}$ inches, for All Round and Sectional Boilers to 36-inch.....each	1.00
" Export, 6x4 $\frac{1}{2}$ x2 $\frac{3}{4}$ inches, for New 36 and 48-inch Boilers..... "	3.00
" Oval, 2 $\frac{3}{4}$ x4x1 inches..... "	1.00

### MAGIC STEAM FLUE CLEANERS

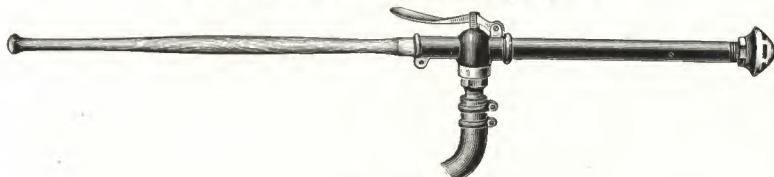


Fig. 9168H

Size of Tube... inches	2 to 2 $\frac{1}{4}$	2 $\frac{1}{2}$ to 2 $\frac{3}{4}$	3 to 3 $\frac{1}{4}$	3 $\frac{1}{2}$ to 3 $\frac{3}{4}$	4 to 4 $\frac{1}{2}$	5 to 6
Price.....each	5.00	6.25	7.50	8.75	10.00	12.50



## TUBE EXPANDERS AND CUTTERS

### STANDARD ROLLER TUBE EXPANDERS

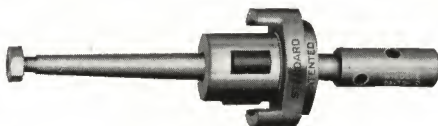


Fig. 9302A

Size.....inches	1 to 2	2¼	2½	2¾	3	3¼	3½
Price .....each	10.00	12.00	14.00	16.00	18.00	20.00	23.00
“ Mandrels .....	2.00	2.00	2.50	3.75	3.75	4.25	4.75
“ Rollers.....“	.20	.20	.20	.35	.35	.50	.50

Size.....inches	3¾	4	4¼	4½	5	6	....
Price .....each	25.00	30.00	40.00	50.00	60.00	70.00	....
“ Mandrels .....	5.50	5.75	6.50	8.50	10.00	11.00	....
“ Rollers.....“	.60	.60	.80	.80	1.00	1.75	....

### IDEAL SELF-FEED TUBE CUTTER

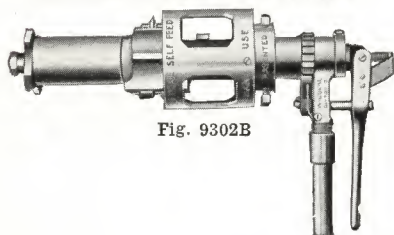


Fig. 9302B

### LAGONDA BOILER TUBE CUTTER

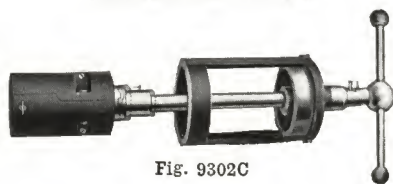


Fig. 9302C

### IDEAL SELF-FEED TUBE CUTTERS

Diameter ..inches	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	5½	6
Price .....each	15.00	16.00	17.00	18.00	22.00	22.50	23.00	24.00	37.00	39.00	39.50	40.00

### EXTENSIONS FOR IDEAL SELF-FEED TUBE CUTTERS

Lettered Size Extension.....	D-1½	D-3	D-6	D-8	E-1½	E-3	E-6	E-8	F-1½	F-3
Length of Extension...inches	19	38	72	96	19	38	72	96	19	38
Fits Sizes of Ideal Cutters.....inches	2-2¼-2½-2¾				3-3¼-3½-4				4½, 5, 5½, 6	
Price, Extensions Complete....each	4.00	8.50	14.00	16.00	5.00	11.00	16.00	20.00	9.00	20.00
“ Extra Feed Rods..“	1.50	2.50	4.00	5.00	1.50	2.50	4.00	5.00	3.00	5.00
“ “ Couplings..“	.35	.35	.35	.35	.35	.35	.35	.35	.50	.50
“ “ Set Screws..“	.10	.10	.10	.10	.10	.10	.10	.10	.20	.20

### LAGONDA BOILER TUBE CUTTERS

Cuts Tubes.....inches	2 to 2½	3 to 4	4½ to 6
Price.....each	15.00	25.00	30.00

They will cut tubes of any boiler at any place in its length in less than a minute.



## TILLMAN PRESSURE GENERATORS

GENERATOR

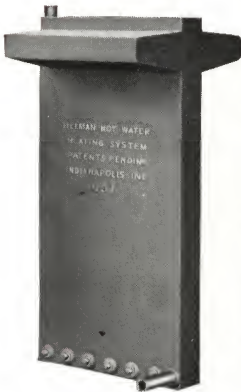


Fig. 3421A

This generator is cast in one piece. No movable parts, and contains nothing but a continuous opening 1 inch square, from the inlet to the outlet. Operates and makes pressure by differentiating columns of water against columns of air. Every hot water heating system always contains the elements (water and air) necessary to cause and maintain it in perfect operation. May be drained by removing plugs near the bottom without disconnecting or disturbing it in any way. Contains no mercury to blow or siphon out, no small opening liable to clog up with sediment or valve to stick and cause dangerous pressure. Guaranteed to make the full amount of pressure given in list below and to operate as long as the heating system lasts.

When the water in the boiler is heated and expansion takes place, water is gradually forced into the generator at A and up the tube B and into air wing C. As the water rises all air is driven before it and down into tube E. As expansion continues, water is forced across point D, falling down through the air in tube E and filling the opening F which leads to the next series of tubes. When the opening F is sealed it becomes a water trap, thus sealing or trapping the correct quantity of air in air tube E.

As the expansion continues water is forced through opening F and up the next series of tubes, the operation being the same in each succeeding series. Each series or pair of tubes cause a back pressure of 14 ounces, and there are twelve pairs of tubes in No. 1 generator, and when all are in operation a maximum pressure of full 10 pounds is attained.

When the water in the boiler cools and contracts the water in tube B and air wing C begins to lower and pass out of the Generator at A, and into the boiler. Lowering of the water in air wing C tends to produce a vacuum in the wing, and air in tube E immediately begins to occupy this space. As the water in the boiler continues to cool and contract, the water will all be drained from air wing C and the space in this wing will be occupied by all of the air contained in tube E.

While the air is being drawn from tube E into air wing C, water will be rising in tube E, following the withdrawal of the air, until it is full, when it will flow across the wall at point D into tube B and out of the Generator and into the boiler at A.

When making pressure, the operation of the Generator consists in driving the air from wing C into tube E, thus balancing a heavy column of water against a similar column of air which weighs nothing. When water is passing back from the expansion tank, through the Generator, into the boiler, the operation of the Generator consists in transferring the air from the tube E into air wing C; the idea being to temporarily rid the tube E of air, so as to permit a continuous stream of water passing from the outlet all the way back to the inlet.

**CAUTION**—When ready to fill the system, open the gate valve in the cross connection first, then turn in the city water. When the system is filled close the gate valve tightly.

No. 0. Capacity up to 500 feet of radiation. Generates 7 pounds pressure. Price, 20.00 each.

No. 1. Capacity up to 1500 feet of radiation. Generates 10 pounds pressure. Price, 25.00 each.

No. 2. Capacity above 1500 feet of radiation. Generates 13 pounds pressure. Price, 35.00 each.

No. 0 generator for operation work and small jobs.

SHOWING  
OPERATION



Fig. 3421B

## HOT WATER STORAGE TANKS

## HORIZONTAL OR VERTICAL

With or without Steam Coil

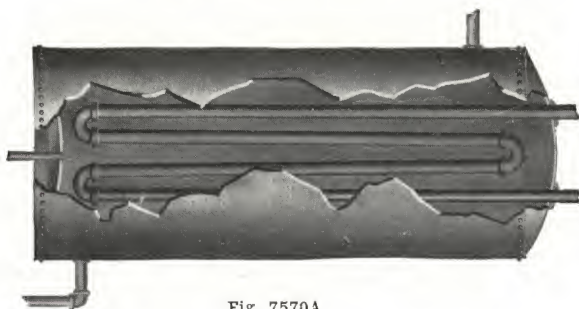


Fig. 7570A

Capacity Gallons	Diameter Inches	Length Feet	Approximate Weight Pounds	Price Plain Tanks Each	Number of Pipes in Coil	Size of Pipes in Coil	Price Plain Coils Each	Price Galv. Coils Each
120	24	5	425	55.00	4	1 1/4	14.00	16.00
145	24	6	445	58.00	4	1 1/4	15.00	17.00
170	24	7	510	63.00	4	1 1/4	16.00	18.00
180	30	5	495	64.00	4	1 1/4	14.00	16.00
220	30	6	560	70.00	4	1 1/4	15.00	17.00
255	30	7	625	75.00	4	1 1/4	16.00	18.00
295	30	8	700	88.00	4	1 1/4	17.00	19.00
315	36	6	750	92.00	4	1 1/2	18.00	21.00
365	36	7	825	102.00	4	1 1/2	19.00	22.00
420	36	8	900	112.00	4	1 1/2	20.00	23.00
525	36	10	1050	131.00	4	1 1/2	22.00	25.00
575	42	8	1450	135.00	4	1 1/2	21.00	24.00
720	42	10	1650	150.00	4	1 1/2	24.00	27.00
865	42	12	1900	196.00	4	1 1/2	27.00	30.00
1000	42	14	2200	219.00	4	1 1/2	30.00	33.00

Prices of tanks with brass or copper coils, on application.

Flanged openings, add to list for each opening: 2-inch or 2 1/2-inch, 5.00; 3-inch or 3 1/2-inch, 6.00; 4-inch, 7.00.

Manhole in head, 15.00; in shell, 25.00. Handhole in head or shell, 5.00.

Tested to 100 pounds hydrostatic pressure, and for use where water working pressure does not exceed 65 pounds.

Regularly made with openings so that they may be used horizontally or vertically.

Manholes, handholes, and coils furnished only when specially ordered.

We recommend that tanks containing coils be made with a manhole.

Stands, hangers or supports for horizontal or vertical tanks, furnished at an extra charge.

# EXTRA HEAVY HOT WATER STORAGE TANKS

BLACK OR GALVANIZED, HORIZONTAL OR VERTICAL  
WITH OR WITHOUT STEAM COIL

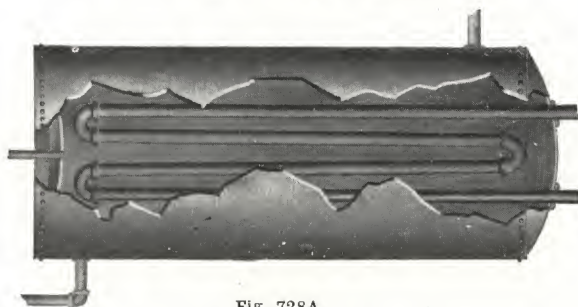


Fig. 728A

These tanks are tested to 150 pounds hydrostatic pressure and guaranteed for working pressures not exceeding 100 pounds to the square inch.

Capac. Gallons	Diam. Inches	Length Feet	Size Con- necti'ns Inches	Weight Lbs.	THICKNESS, IN.		PRICE, EACH		COILS BUILT IN TANKS			
					Shell	Head	Black	Gal- vanized	Size of Coil Inches	Price Black Pipe Coil	Price Galv. Pipe Coil	Price I.P.Size Brass Coil
120	24	5	1½	400	$\frac{3}{16}$	$\frac{5}{16}$	58.00	84.00	1¼	14.00	17.00	50.00
140	24	6	1½	460	$\frac{3}{16}$	$\frac{5}{16}$	62.00	92.00	1¼	16.00	19.00	60.00
180	30	5	2	560	$\frac{3}{16}$	$\frac{3}{8}$	69.00	105.50	1¼	14.00	17.00	50.00
220	30	6	2	640	$\frac{3}{16}$	$\frac{3}{8}$	73.00	114.50	1¼	16.00	19.00	60.00
250	30	7	2	700	$\frac{3}{16}$	$\frac{3}{8}$	82.00	127.50	1¼	18.00	21.00	70.00
285	30	8	2	770	$\frac{3}{16}$	$\frac{3}{8}$	87.00	137.00	1¼	20.00	23.00	80.00
315	36	6	2	970	$\frac{1}{4}$	$\frac{3}{8}$	95.00	158.00	1½	20.00	23.00	75.00
365	36	7	2	1080	$\frac{1}{4}$	$\frac{3}{8}$	104.00	174.00	1½	22.00	25.00	90.00
420	36	8	2	1180	$\frac{1}{4}$	$\frac{3}{8}$	112.00	188.50	1½	24.00	28.00	105.00
525	36	10	2	1400	$\frac{1}{4}$	$\frac{3}{8}$	129.00	220.00	1½	28.00	32.00	120.00
430	42	6	2	1230	$\frac{1}{4}$	$\frac{7}{16}$	113.00	.....	1½	20.00	23.00	75.00
500	42	7	2	1350	$\frac{1}{4}$	$\frac{7}{16}$	124.00	.....	1½	22.00	25.00	90.00
575	42	8	2	1480	$\frac{1}{4}$	$\frac{7}{16}$	135.00	.....	1½	24.00	28.00	105.00
720	42	10	2	1750	$\frac{1}{4}$	$\frac{7}{16}$	153.00	.....	1½	28.00	32.00	120.00
865	42	12	2	2000	$\frac{1}{4}$	$\frac{7}{16}$	171.00	.....	1½	32.00	36.00	135.00
1000	42	14	2	2250	$\frac{1}{4}$	$\frac{7}{16}$	191.00	.....	1½	36.00	40.00	150.00
750	48	8	3	1800	$\frac{1}{4}$	$\frac{7}{16}$	168.00	.....	.....	.....	.....	.....
940	48	10	3	2100	$\frac{1}{4}$	$\frac{7}{16}$	188.00	.....	.....	.....	.....	.....
1130	48	12	3	2400	$\frac{1}{4}$	$\frac{7}{16}$	209.00	.....	.....	.....	.....	.....
1300	48	14	3	2700	$\frac{1}{4}$	$\frac{7}{16}$	230.00	.....	.....	.....	.....	.....

Regularly furnished with pressed steel flanges at openings.

Extra for manhole in head, 15.00.

Extra for handhole in head, 5.00.

" " " " shell, 25.00.

" " " " shell, 5.00.

Tanks containing steam coils should always have manhole.



## PNEUMATIC PRESSURE TANKS

### FOR DOMESTIC WATER SUPPLY SYSTEMS

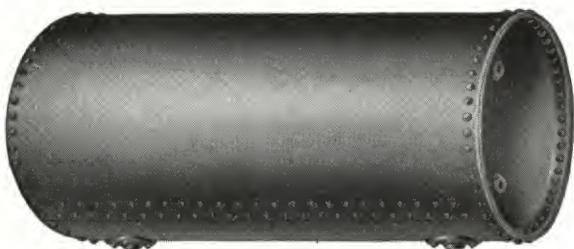


Fig. 7812A

Tested to 125 pounds air pressure and guaranteed for working pressures not exceeding 75 pounds to the square inch. Heads dished to a radius equal the diameter of the shell. Longitudinal seams double riveted, lap joints. Furnished regularly with pressed steel flanges at all openings, as shown above.

#### LIST PRICES, SIZES, CAPACITIES, WEIGHTS, ETC.

Size Tank Inches	Capacity Gallons	Weight Pounds	THICKNESS, INCHES		Regular Connections Inches	PRICE, EACH	
			Shell	Head		Black	Galvanized
24x 6	140	420	$\frac{3}{16}$	$\frac{5}{16}$	1	40.00	56.50
24x 8	190	541	$\frac{3}{16}$	$\frac{5}{16}$	1	50.00	71.00
24x10	235	629	$\frac{3}{16}$	$\frac{5}{16}$	1	56.00	80.50
30x 6	220	565	$\frac{3}{16}$	$\frac{5}{16}$	1	52.00	74.00
30x 8	295	713	$\frac{3}{16}$	$\frac{5}{16}$	1	64.00	92.00
30x10	365	825	$\frac{3}{16}$	$\frac{5}{16}$	1	73.00	105.00
30x12	440	955	$\frac{3}{16}$	$\frac{5}{16}$	1	82.00	120.00
36x 6	315	696	$\frac{3}{16}$	$\frac{3}{8}$	$1\frac{1}{4}$	66.00	93.00
36x 8	420	880	$\frac{3}{16}$	$\frac{3}{8}$	$1\frac{1}{4}$	78.00	112.50
36x10	525	1012	$\frac{3}{16}$	$\frac{3}{8}$	$1\frac{1}{4}$	92.00	132.00
36x12	630	1159	$\frac{3}{16}$	$\frac{3}{8}$	$1\frac{1}{4}$	95.00	140.00
42x 8	575	1370	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{4}$	95.00	148.00
42x10	720	1584	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{4}$	113.00	175.00
42x12	865	1827	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{4}$	140.00	211.00
42x14	1000	2115	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{4}$	155.00	238.00
42x16	1150	2362	$\frac{1}{4}$	$\frac{3}{8}$	$1\frac{1}{4}$	168.00	260.00
48x10	1000	1862	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	160.00	.....
48x12	1130	2137	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	178.00	.....
48x14	1300	2464	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	195.00	.....
48x16	1500	2744	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	217.00	.....
48x18	1700	3751	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	250.00	.....
48x20	1880	4102	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	280.00	.....
48x24	2260	4805	$\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{2}$	311.00	.....

Above sizes in factory stock for immediate delivery. Larger sizes on application.

24-inch Horizontal Pressure Tanks, tapped for  $\frac{1}{2}$  x 12-inch Water Gauge.

30 " " " " " "  $\frac{1}{2}$  x 14 " " "

36 " " " " " "  $\frac{1}{2}$  x 16 " " "

42 " " " " " "  $\frac{1}{2}$  x 20 " " "

48 " " " " " "  $\frac{1}{2}$  x 24 " " "

6-foot Vertical " " " "  $\frac{1}{2}$  x 16 " " "

Unless specified horizontal in the order, pneumatic pressure tanks, 6 feet long will be shipped vertical pattern.

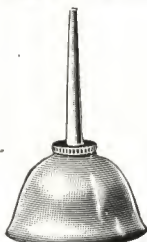
## OILERS

## COPPERIZED STEEL OILERS

### BENT SPOUT



## STRAIGHT SPOUT



## MALLEABLE IRON OILERS

Number.....	1	2	3
Diameter..... inches	$3\frac{1}{4}$	$3\frac{5}{8}$	$3\frac{7}{8}$
Price..... per dozen	3.60	4.00	4.40

## COPPERIZED STEEL OILERS

Number .....	12	13	13A	14	14A
Diameter .....inches	2 $\frac{3}{4}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{8}$	3 $\frac{3}{4}$
Length of Nozzle....."	2 $\frac{1}{2}$	3	5	9	3
Capacity .....ounces	3	5	5	5	8
Price, Straight Nozzle....per doz.	4.50	5.50	6.00	....	7.50
" Bent " .... "	....	....	....	6.50	....
Number .....	14A A	14B	15	15A	16
Diameter .....inches	3 $\frac{3}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$
Length of Nozzle....."	5	9	3	5	9
Capacity .....ounces	8	8	16	16	16
Price, Straight Nozzle....per doz.	8.00	....	9.25	9.75	....
" Bent " .... "	....	8.50	....	....	10.50

## COPPERIZED STEEL RAILROAD OILERS

Number .....		10	11
Diameter .....	inches	$3\frac{3}{8}$	$4\frac{1}{8}$
Height .....	"	6	6
Length of Spout .....	"	12	18
Capacity .....	pints	1	2
Price .....	per dozen	14.00	18.00

## COPPERIZED STEEL ENGINEERS' FILLERS

Number .....	19	19 A	210	211
Capacity ..... pints	1	$1\frac{1}{2}$	2	4
Price ..... per dozen	14.00	17.00	20.00	24.00

**COPPERIZED STEEL ENGINEERS' SETS WITH  
ROUND TRAY**

Price, No. C-30, Five Pieces, including Tray.....per set	5.00
" " C-40, Six " " " ....." "	7.00

## RAILROAD OILER



## MACHINE BOLTS

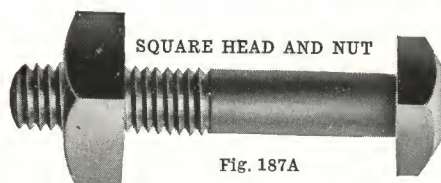


Fig. 187A

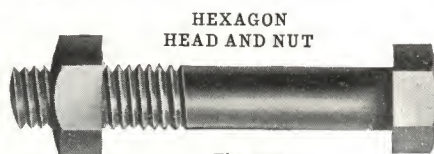


Fig. 187B

## SQUARE HEADS, SQUARE NUTS AND FINISHED POINTS

Manufacturers' Standard List—In Effect August 1, 1912—Price, per Hundred

Length Inches	DIAMETER, INCHES										
	1/4	5/16	3/8	7/16	1/2	9/16 & 5/8	3/4	7/8	1	1 1/8	1 1/4
3/4 to 1 1/2	1.70	2.00	2.40	2.80	3.60	5.20	7.70	10.50	15.10	22.50	30.00
2	1.78	2.12	2.56	3.00	3.86	5.58	8.25	11.20	16.00	23.70	31.50
2 1/2	1.86	2.24	2.72	3.20	4.12	5.96	8.80	11.90	16.90	24.90	33.00
3	1.94	2.36	2.88	3.40	4.38	6.34	9.35	12.60	17.80	26.10	34.50
3 1/2	2.02	2.48	3.04	3.60	4.64	6.72	9.90	13.30	18.70	27.30	36.00
4	2.10	2.60	3.20	3.80	4.90	7.10	10.45	14.00	19.60	28.50	37.50
4 1/2	2.18	2.72	3.36	4.00	5.16	7.48	11.00	14.70	20.50	29.70	39.00
5	2.26	2.84	3.52	4.20	5.42	7.86	11.55	15.40	21.40	30.90	40.50
5 1/2	2.34	2.96	3.68	4.40	5.68	8.24	12.10	16.10	22.30	32.10	42.00
6	2.42	3.08	3.84	4.60	5.94	8.62	12.65	16.80	23.20	33.30	43.50
6 1/2	2.50	3.20	4.00	4.80	6.20	9.00	13.20	17.50	24.10	34.50	45.00
7	2.58	3.32	4.16	5.00	6.46	9.38	13.75	18.20	25.00	35.70	46.50
7 1/2	2.66	3.44	4.32	5.20	6.72	9.76	14.30	18.90	25.90	36.90	48.00
8	2.74	3.56	4.48	5.40	6.98	10.14	14.85	19.60	26.80	38.10	49.50
9	2.90	3.80	4.80	5.80	7.50	10.90	15.95	21.00	28.60	40.50	52.50
10	3.06	4.04	5.12	6.20	8.02	11.66	17.05	22.40	30.40	42.90	55.50
11	3.22	4.28	5.44	6.60	8.54	12.42	18.15	23.80	32.20	45.30	58.50
12	3.38	4.52	5.76	7.00	9.06	13.18	19.25	25.20	34.00	47.70	61.50
13	3.54	4.76	6.08	7.40	9.58	13.94	20.35	26.60	35.80	50.10	64.50
14	3.70	5.00	6.40	7.80	10.10	14.70	21.45	28.00	37.60	52.50	67.50
15	3.86	5.24	6.72	8.20	10.62	15.46	22.55	29.40	39.40	54.90	70.50
16	4.02	5.48	7.04	8.60	11.14	16.22	23.65	30.80	41.20	57.30	73.50
17	4.18	5.72	7.36	9.00	11.66	16.98	24.75	32.20	43.00	59.70	76.50
18	4.34	5.96	7.68	9.40	12.18	17.74	25.85	33.60	44.80	62.10	79.50
19	4.50	6.20	8.00	9.80	12.70	18.50	26.95	35.00	46.60	64.50	82.50
20	4.66	6.44	8.32	10.20	13.22	19.26	28.05	36.40	48.40	66.90	85.50
21	.....	.....	.....	.....	.....	.....	29.15	37.80	50.20	69.30	88.50
22	.....	.....	.....	.....	.....	.....	30.25	39.20	52.00	71.70	91.50
23	.....	.....	.....	.....	.....	.....	31.35	40.60	53.80	74.10	94.50
24	.....	.....	.....	.....	.....	.....	32.45	42.00	55.60	76.50	97.50
25	.....	.....	.....	.....	.....	.....	33.55	43.40	57.40	78.90	100.50
26	.....	.....	.....	.....	.....	.....	34.65	44.80	59.20	81.30	103.50
27	.....	.....	.....	.....	.....	.....	35.75	46.20	61.00	83.70	106.50
28	.....	.....	.....	.....	.....	.....	36.85	47.60	62.80	86.10	109.50
29	.....	.....	.....	.....	.....	.....	37.95	49.00	64.60	88.50	112.50
30	.....	.....	.....	.....	.....	.....	39.05	50.40	66.40	90.90	115.50

The following extras are to be understood as a part of this list:

Bolts with hexagon heads or hexagon nuts, 10 per cent extra. If both hexagon heads and hexagon nuts, 20 per cent extra. Joint bolts with oblong nuts, 10 per cent extra. Bolts with tee heads, askew heads and eccentric heads, 20 per cent extra. Key bolts, 20 per cent extra. Bolts with cotter holes, 25 per cent extra.

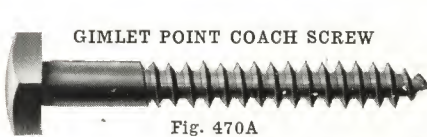
Machine bolts, when fitted with U. S. standard square nuts, add 5 per cent.

Machine bolts, when fitted with U. S. standard hexagon nuts, add 15 per cent.

Machine bolts packed other than standard packing, to be charged extra, at discretion of manufacturer.

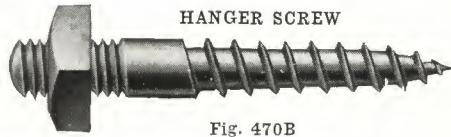


## COACH AND HANGER SCREWS



GIMLET POINT COACH SCREW

Fig. 470A



HANGER SCREW

Fig. 470B

## COACH AND LAG SCREWS—PRICE, PER HUNDRED

Adopted November 12, 1908

Length under Head Inches	DIAMETER OF SCREW, INCHES							
	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}, \frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
1½	2.25	2.70	3.15	3.75	.....	.....	.....	.....
2	2.45	2.96	3.47	4.11	6.00	.....	.....	.....
2½	2.65	3.22	3.79	4.47	6.50	9.20	.....	.....
3	2.85	3.48	4.11	4.83	7.00	9.90	15.00	.....
3½	3.05	3.74	4.43	5.19	7.50	10.60	16.00	22.00
4	3.25	4.00	4.75	5.55	8.00	11.30	17.00	23.30
4½	3.45	4.26	5.07	5.91	8.50	12.00	18.00	24.60
5	3.65	4.52	5.39	6.27	9.00	12.70	19.00	25.90
5½	3.85	4.78	5.71	6.63	9.50	13.40	20.00	27.20
6	4.05	5.04	6.03	6.99	10.00	14.10	21.00	28.50
6½	4.25	5.30	6.35	7.35	10.50	14.80	22.00	29.80
7	4.45	5.56	6.67	7.71	11.00	15.50	23.00	31.10
7½	4.65	5.82	6.99	8.07	11.50	16.20	24.00	32.40
8	4.85	6.08	7.31	8.43	12.00	16.90	25.00	33.70
9	5.25	6.60	7.95	9.15	13.00	18.30	27.00	36.30
10	5.65	7.12	8.59	9.87	14.00	19.70	29.00	38.90
11	6.05	7.64	9.23	10.59	15.00	21.10	31.00	41.50
12	6.45	8.16	9.87	11.31	16.00	22.50	33.00	44.10

The following extras are to be understood as a part of this list.

Hexagon heads, 10 per cent extra. Tee heads, 20 per cent extra.

Skein screws sold at the same price as lag screws.

## HANGER SCREWS—PRICE, PER HUNDRED

Adopted May 21, 1902

Length Inches	DIAMETER OF SCREW, INCHES							
	$\frac{1}{4}, \frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
2	3.00	3.60	4.24	5.06	6.19	.....	.....	.....
2½	3.19	3.83	4.54	5.44	6.75	9.90	.....	.....
3	3.38	4.05	4.84	5.81	7.31	10.73	.....	.....
3½	3.57	4.28	5.14	6.19	7.88	11.55	15.00	.....
4	3.75	4.50	5.44	6.56	8.44	12.38	16.00	.....
4½	3.94	4.73	5.74	6.94	9.00	13.20	17.00	.....
5	4.13	4.95	6.04	7.31	9.56	14.03	18.00	26.25
5½	4.32	5.18	6.34	7.69	10.13	14.85	19.00	27.50
6	4.50	5.40	6.64	8.06	10.69	15.68	20.00	28.75
6½	.....	5.62	6.94	8.43	11.25	16.50	21.00	30.00
7	.....	5.84	7.24	8.80	11.82	17.33	22.50	31.25
7½	.....	6.06	7.54	9.17	12.38	18.15	23.44	32.50
8	.....	6.28	7.84	9.55	12.95	19.03	24.37	33.75
9	.....	.....	8.14	9.92	13.51	19.85	26.25	35.62
10	.....	.....	.....	10.30	14.08	20.68	27.50	37.50
11	.....	.....	.....	.....	14.64	21.50	28.75	39.38
12	.....	.....	.....	.....	15.21	22.32	30.00	41.25

## STANDARD SCREWED FITTINGS

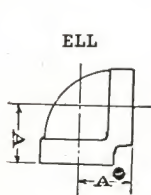


Fig. 20358A

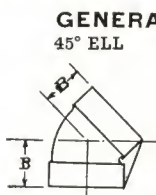


Fig. 20358B

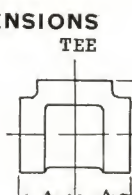


Fig. 20358C

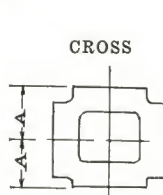


Fig. 20358D

## CAST IRON

Size Inches	DIMENSIONS, INCHES		Size Inches	DIMENSIONS, INCHES	
	A	B		A	B
1/4	7/8	9/16	3 1/2	3 1/4	2 1/4
3/8	1 1/16	1 1/16	4	3 7/8	2 5/8
1/2	1 1/8	1 1/8	4 1/2	3 7/8	2 3/8
3/4	1 5/8	1 7/8	5	4 1/4	2 5/8
1	1 7/8	1 1/4	6	5	3 1/8
1 1/4	1 3/4	1 1/4	7	5 7/8	3 3/8
1 1/2	1 5/8	1 3/8	8	6 9/16	3 7/8
2	2 1/4	1 1/2	9	7 3/8	4 3/8
2 1/2	2 1/2	1 1/16	10	8	4 9/16
3	2 7/8	1 5/8	12	9 1/2	5 1/2

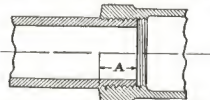
## MALLEABLE IRON

Size Inches	DIMENSIONS, INCHES		Size Inches	DIMENSIONS, INCHES	
	A	B		A	B
1/8	5/8	....	1 1/2	1 5/16	1 7/16
1/4	13/16	3/4	2	2 5/16	1 11/16
3/8	1 1/16	13/16	2 1/2	2 11/16	1 15/16
1/2	1 1/8	7/8	3	3 1/8	2 3/8
3/4	1 5/8	1	3 1/2	3 9/16	2 3/8
1	1 1/2	1 1/8	4	3 7/8	2 5/8
1 1/4	1 3/4	1 5/8	....	....	....

The above dimensions are subject to a slight variation and change without notice.

## LENGTH OF THREAD ON PIPE

That is Screwed into Valves or Fittings to make a Tight Joint



Size Inches	Dimensions Inches, A	Size Inches	Dimensions Inches, A	Size Inches	Dimensions Inches, A
1/8	1/4	1 1/2	5/8	5	1 3/16
1/4	3/8	2	1 1/16	6	1 1/4
3/8	3/8	2 1/2	1 5/16	7	1 1/4
1/2	1/2	3	1	8	1 5/8
3/4	1/2	3 1/2	1 1/16	9	1 3/8
1	9/16	4	1 1/16	10	1 1/2
1 1/4	5/8	4 1/2	1 1/8	12	1 5/8

Dimensions given do not allow for variation in tapping and threading.

## SUGGESTIONS TO THE FITTER

### GENERAL RULES FOR APPORTIONING RADIATION

This table is a "rough and ready" one and will be found generally safe and reliable. The heating engineer should provide for special exposure, poorly built structures, rooms containing abnormally large amount of glass surface, rooms having three sides exposed and rooms far distant from boiler.

Description of Rooms, Etc.	ONE SQUARE FOOT OF RADIATION WILL HEAT, CUBIC FEET	
	Steam	Hot Water
Bathrooms and Living Rooms with Three Exposures and Large Amount of Glass	40 to 50	20 to 30
Living Rooms with Two Exposures and Ordinary Amount of Glass	45 " 50	25 " 30
Living Rooms with One Exposure and Ordinary Amount of Glass	50 " 60	30 " 35
Sleeping Rooms	60 " 70	30 " 40
Halls located on Corner	45 " 55	25 " 35
" " in Center of House	60 " 70	30 " 40
Schoolrooms	60 " 80	35 " 50
Churches and Auditoriums	75 " 150	60 " 80
Stores	60 " 100	40 " 60
Lofts, Shops and Factories	75 " 125	60 " 100
Offices	50 " 75	30 " 45

For indirect radiation, add to above for steam, 50 per cent; for water, 75 per cent.

For direct-indirect radiation, add to above for steam, 25 per cent; for water, 33½ per cent.

While the above ratios will be found satisfactory in some instances, there are many cases in which the exposure of the house, the amount of glass surface and cubic contents of the room, together with the character of building, will have to be taken into consideration, and a more exact rule (Carpenter's) is as follows:

#### FOR DIRECT HEATING BY STEAM

Let R = Number of square feet radiation required.

G = Glass surface.

W = Exposed wall surface.

V = Cubic contents of room.

Then for store buildings and large halls:

$$R = G + \frac{1}{4}W + \frac{V}{55} \times 0.25$$

IMPORTANT.—The factor  $\frac{V}{55}$  is only to be used as stated above for store buildings and large halls; for residences use  $\frac{3V}{55}$  or  $\frac{3}{55}$  of the cubic contents of the room and for sleeping rooms, use the factor  $\frac{2V}{55}$ .

#### FOR HEATING WITH HOT WATER

$$R = G + \frac{1}{4}W + \frac{V}{55} \times 0.4$$

the factor  $\frac{V}{55}$  being variable as in the case of steam, as stated above.

The above rule is based on providing a temperature of 70° Fahr. in the house in zero weather. For every degree below zero add 1 per cent of the amount of radiation.



## SUGGESTIONS TO THE FITTER

### GREENHOUSE HEATING



Fig. 9563A

While greenhouses may be satisfactorily heated with steam, hot water is generally preferred because of its ability to store large quantities of heat, and in case the fires are neglected or go out, the stored heat is given off gradually, and by preventing a sudden fall in temperature protects the plants from injury.

The following table shows amounts of radiating surface necessary to heat a given amount of glass exposure to various temperatures in zero weather.

For 10 below zero, add 10 per cent; for 20 below zero, add 20 per cent; etc. In proportioning glass surface, all wall surface must be figured in—about 5 feet of wall equals 1 foot of glass.

Square Feet of Glass Exposure and Equivalent	HOT WATER					STEAM				
	NO. OF SQUARE FEET OF RADIATION REQUIRED AT					NO. OF SQUARE FEET OF RADIATION REQUIRED AT				
	40°	45°	50°	60°	70°	40°	45°	50°	60°	70°
25	4 $\frac{1}{6}$	5	6 $\frac{1}{4}$	7 $\frac{1}{2}$	8 $\frac{1}{3}$	2 $\frac{7}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$	4 $\frac{1}{6}$	5
50	8	10	13	14	16	5 $\frac{5}{8}$	6 $\frac{1}{4}$	7 $\frac{1}{2}$	8 $\frac{1}{3}$	10
75	13	15	19	21	25	8	9	10	13	15
100	17	20	25	29	33	11	13	14	17	20
200	33	40	50	57	67	23	25	30	33	40
300	50	60	75	86	100	34	38	43	50	60
400	67	80	100	114	133	45	50	57	67	80
500	83	100	125	143	167	56	63	72	83	100
1000	167	200	250	286	333	112	125	143	167	200
2000	333	400	500	572	667	223	250	286	333	400
3000	500	600	750	857	1000	334	375	429	500	600
4000	667	800	1000	1143	1333	445	500	571	667	800
5000	833	1000	1250	1429	1667	556	625	714	833	1000
10000	1667	2000	2500	2857	3333	1112	1250	1429	1667	2000
20000	3333	4000	5000	5714	6667	2223	2500	2857	3333	4000

For poorly constructed houses, add 10 per cent to the above amounts.

Do not use asphalt or tar paints in a greenhouse; they will injure the plants. Paint pipes with lampblack and boiled oil thinned with turpentine.

A most important part of a greenhouse is its chimney. This should be of brick or tile and of ample size, and should never be less than 25 feet high.

## SUGGESTIONS TO THE FITTER

### CHIMNEYS

As a source of failure and trouble in heating plants there is nothing more responsible than defective chimneys.

A boiler will not operate without a suitable draft, and as the boiler draft depends entirely upon the chimney, the better this chimney, other conditions being equal, the more successful will be the working of the entire apparatus.

The boiler manufacturers specify in their catalogues the size of smoke pipes for the various size boilers, and it is ridiculous to assume that a chimney of lesser area will do the work.

Chimney flues for heating apparatus should be ample in size and carried as nearly straight as possible, from near the basement floor to above the highest point of roof. They should be independent flues, having no connection with other flues or openings and always the same size from bottom to top.

A well-jointed tile flue, preferably round, is better than a brick flue of larger area.

Rectangular flues, if not square, should not vary more than 4 inches in measurements. Size of flues may be figured from following table:

Contents of Building Cubic Feet of Space	Average Direct Radiation Steam Square Feet	Tile Flues, Square or Rectangular Outside Diameter Inches	Tile Flues Round, Inside Diameter Inches	Brick Flues Inside Dimensions Inches
10000 to 20000	200 to 400	8½ x 8½	8	8 x 8
25000 " 50000	400 " 900	8½ x 13	10	8 x 12
60000 " 100000	1000 " 1600	13 x 13	12	12 x 12
100000 " 150000	1600 " 3000	18 x 18	16	16 x 16

No flues should be less than 8 inches in diameter or 8 x 8 inches square.

### GUIDE FOR HOT WATER HEATING PIPES

Main				Branches			
1	inch	Main will supply	2	¾-inch.			
1¼	"	"	2	1	"		
1½	"	"	2	1¼	"		
2	"	"	2	1½	"		
2½	"	"	2	1½	"	and 1-1½-inch,	or 1-2 inch and 1-1¼-inch
3	"	"	1	2½	"	" 1-2 "	" 2-2 " " 1-1½ "
3½	"	"	2	2½	"	or 1-3 "	and 1-2 " " 3-2 "
4	"	"	1	3½	"	and 1-2½ "	or 2-3 " " 4-2 "
4½	"	"	1	3½	"	" 1-3 "	" 1-4 " and 1-2½ "
5	"	"	1	4	"	" 1-3 "	" 1-4½ " " 1-2½ "
6	"	"	2	4	"	" 1-3 "	" 4-3 " or 10-2 "
7	"	"	1	6	"	" 1-4 "	" 3-4 " and 1-2 "
8	"	"	2	6	"	" 1-5 "	" 5-4 " " 2-2 "

For full details of dimensions of standard wrought pipe giving external and internal circumference, external and internal areas, etc., refer to page covering same.

### SIZE OF MAIN FLOW PIPE FOR ONE-PIPE HOT WATER JOBS

Using Eureka Fittings

Size of Main.....inches	2	2½	3	3½	4	5	6	7	8
Square Feet of Radiation.	225	350	500	650	900	1500	2200	3000	4000



## SUGGESTIONS TO THE FITTER

### STEAM MAINS

The size of steam mains can be determined by taking the total amount of direct radiation or its equivalent, to which add for mains and branches 25 per cent, and from this total extract the square root, dividing the result by 10, which gives the size of main to use for one-pipe work. For two-pipe work, one size less is sufficient and returns can be one or two sizes less than supply.

A steam main should not decrease in size according to the area of its branches, but very much slower.

### HOT WATER MAINS

No general rule can be given, as the height of expansion tank above the boiler and length of mains are constantly varying factors. The following table is suggested:

1 1/4-inch Pipe	for	75 to	125 Square Feet Direct Radiation
1 1/2 " " " " " " " " " " " "	"	125 " 175	" " " " " "
2 " " " " " " " " " " " "	"	175 " 300	" " " " " "
2 1/2 " " " " " " " " " " " "	"	300 " 475	" " " " " "
3 " " " " " " " " " " " "	"	475 " 700	" " " " " "
3 1/2 " " " " " " " " " " " "	"	700 " 950	" " " " " "
4 " " " " " " " " " " " "	"	950 " 1200	" " " " " "
4 1/2 " " " " " " " " " " " "	"	1200 " 1575	" " " " " "
5 " " " " " " " " " " " "	"	1575 " 1975	" " " " " "
6 " " " " " " " " " " " "	"	2375 " 2850	" " " " " "

### TABLE OF EXPANSION OF WROUGHT PIPE

Temperature of Air when Pipe is Filled	Increase in Inches in Length of 100 Feet of Pipe when Heated to					
	180	200	215	240	265	297
Degrees Fahrenheit						338
Zero	1.44	1.60	1.72	1.92	2.12	2.31
32°	1.18	1.34	1.47	1.66	1.78	2.12
64°	.93	1.09	1.21	1.41	1.61	1.87

Under favorable conditions 1 square inch of grate surface is sufficient for 1 square foot of direct radiation in medium sized boilers, which radiation may be increased in larger heaters and reduced in smaller heaters.

One tenth to one eighth of grate surface will give area of flue. No flue should be less than 8 inches in diameter or 8x8 inches square.

1 pound of anthracite coal contains 14500 British Thermal Units.

1 heat unit (B. T. U.) raises temperature of 1 pound of water 1° and is 1/180 of the distance between the freezing and the boiling points of water. 996 heat units (996 B. T. U.) will evaporate 1 pound of water at 212°.

1 square foot of grate surface will consume in a high pressure steam boiler about 12 pounds of anthracite coal per hour.

1 square foot of grate surface will consume in a low pressure steam boiler 2 1/2 to 4 pounds of anthracite coal per hour.

1 square foot of grate surface will consume in a hot water boiler 2 to 3 pounds of anthracite coal per hour.

7 1/2 pounds of anthracite coal will evaporate 1 cubic foot of water.

An United States gallon of water contains 231 cubic inches, weighs 8.33 pounds, and 1 cubic foot contains 7.48 gallons.

An imperial or English gallon of water contains 277.274 cubic inches, weighs 10 pounds, and 1 cubic foot contains 6.232 gallons.

A column of water exerts a pressure of .434 pounds per foot height. In practice this is usually designated as 1/2 pound pressure per square inch, thus allowing for ordinary friction.



